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To: FCA US LLC, regarding its Dodge brand

Date: November 30, 2016

This letter verifies that on Monday, November 21st, 2016 at Gainesville Raceway in Gainesville, Florida, the Dodge Challenger SRT Demon ran the quarter mile in an elapsed time of 9.650 seconds at 140.09 miles per hour. Both the elapsed time and the speed on this run exceeded the limits on 2008 OEM model-year and newer production cars and therefore violate our rules. The car exceeded our limits of 9.99 seconds and 135 miles per hour. Therefore, before this car can be run again at an NHRA Member Track, it must be brought into compliance with the rules and regulations found in Section 4 of the NHRA Rulebook. If you have any questions concerning this letter or the rules in Section 4 of the NHRA Rulebook, please contact me.

Sincerely,

Glen Gray
NHRA
Vice President, Technical Operations

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photography by John Roe

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CARandDRIVER.com/highmileLambo

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CHEVROLET SS MANUAL
Chevy's pushrod V-8 rear-wheel-drive sedan goes out in a cloud of tire smoke.
CARandDRIVER.com/2017ChevroletSS

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Backfires:
The joyful noise of the commentariat, rebutted sporadically by Ed.

WAITING GAMES

It is a sad time for car lovers when fully half of the 25 "cars" are hideous crossovers ["25 Cars Worth Waiting For," April 2017]. And the one truly exciting, affordable car is the Honda Civic Type R, a car so ugly even its mother couldn't love it. I just hope the rest of the automaker herd doesn't follow the "styling" of the Civic.

—Steven K.
Poughkeepsie, NY

I think you mean 14 cars, and 11 vehicles that don't belong in this magazine.

—Jonathan Bird
North Reading, MA

I read your "25 Cars Worth Waiting For" article and was surprised that there was no mention of Buick's sale of Opel in the piece on the new Regal. Living in Montana, I find the all-wheel-drive wagon especially interesting. However, with the Opel sale happening, I'm wondering if a Buick-badged Opel will still happen. Any light you can shed on that would be appreciated.

—Paul Rubright
Manhattan, MT

The sale announcement took place after the April issue went to press. A GM executive assures us that the deal to sell Opel and Vauxhall to Peugeot will not affect the Regal. Check out the Reveal on page 019—Ed.

Okay, I get it, I'm in the minority—I currently own an Infiniti QX50 and love it. It's a great size, is loaded with features, has rear-wheel drive, handles great, etc. The totally redesigned 2017 QX50 should hold great appeal for me, right? Wrong. It's an immediate no sale because "the only transmission offered is a CVT." Infiniti, leave the CVTs in Nissans; sport/luxury buyers want a more engaging experience!

—Hal Coley
Macon, GA

"THE TOTALLY REDESIGNED 2017 QX50 SHOULD HOLD GREAT APPEAL FOR ME, RIGHT? WRONG. IT'S AN IMMEDIATE NO SALE BECAUSE 'THE ONLY TRANSMISSION OFFERED IS A CVT.'"

Anyone notice that the hindquarters of the Volkswagen Arteon resemble the back of a Chevy Monza? Just sayin'.

—Brian Strom
New Milford, CT

Your "25 Cars Worth Waiting For" was a complete waste of my time. I get that the airport theme is a good idea, but for God's sake, it could be better executed by someone half my age! The aesthetics were so bad that I started calling them ASSthetics. Furthermore, I absolutely loved last year's list [May 2016] because the page layout was simple instead of being designed by Ronald McDonald, and because most of the cars were worth waiting for. But here? No. One of them was a freaking engine! The new QX50 will be crushed by the Jaguar F-Pace, Mercedes-Benz GLC, and the new Audi Q5; the Jeep Wagoneer and BMW X2 may not even happen; the Alfa Romeo Stelvio is just a Giulia in drag; the Toyota C-HR is pointless; and neither the Dodge Demon nor the McLaren 720S made the list at all! Make the list better or don't make it at all!

—Patrick Jacobson
Tiburon, CA

In the April 2017 *Car and Driver*, you have a two-page spread of the 2018 Corvette ZR1. There is ZR1 badging on the front fender and Z06 identification embossed in the rear wheel. Is one package a component of the other, or are they now

the same? Thanks for a great magazine.

—Jerry Johnson
Calistoga, CA

Absolutely wonderful computer-generated renderings of what the new monster Vette may look like, but . . . $135,000 for a new ZR1 wearing old Z06 wheels. Oops! And you want to be my latex salesman. I don't think so.

—LeRoy Johnson
Menomonee Falls, WI

The Alfa Romeo Stelvio sounds like it should be a new pharmaceutical. "Ask your doctor if Stelvio is right for you." Does it come with a product warning? "If an erection lasts longer than four hours . . ." Oh, never mind that part. It's automatic-only like the other Alfas, so that level of excitement is not possible.

—Chuck Draksler
Collegeville, PA

That took a turn—Ed.

MOLLY HATCHET

In your January issue you named the Mazda 3 one of the best compacts available at any price and go on to say that the 3 transcends the field, even when faced with such excellent new competition as Honda's Civic ["One-Car Wonders," April 2017]. I know that in the past Honda has produced some great Civics, and maybe this latest version returns to that reputation, but it was definitely one of the ugliest designs at the Chicago auto show. I suppose if you wear really dark glasses, you could live with its styling. My wife and I love our 2015 Mazda 3 GT with the 2.5-liter inline-four and manual transmission. It is everything you could want and more in a performance compact and in fundamental fluidness of control. Plus, it is absolutely gorgeous when compared with anything in its class, such as the VW Golf or the Civic. I'll keep admiring my Mazda 3 GT's inner beauty and gorgeous looks.

—Dick Weidman
Door County, WI

Coco Chanel famously recommended dressing and then removing one accessory before leaving the house. Honda apparently says: "Dress. Then add 22 superfluous bits of faux-chrome tat, skirting, plastic geegaws, swage lines, pointless visual quirks, and the kitchen sink. Then drench generously in awkwardness." The Civic is a visual mess. The Accord apparently comes with 10-inch wheels as standard. The Fit looks like a Lego kit.

Honda, we car people know your engineering is world class. Your mission now is to find the one person in your entire global operation—there has to be one—with an ounce of design nous, give that person the golden pencil, fire everyone with the audacity to have "design" in their job title, and let him or her sort the visual carnage ASAP.

—Greig McCallum
Naples, FL

So according to your April 2017 comparison test, "The bleachers are polarized on Honda's styling job." So there are humans who like this styling. Who? WHO? Picasso aficionados, people who purchased Pontiac Aztecks, kindergartners? I think this one

"... $135,000 FOR A NEW ZR1 WEARING OLD Z06 WHEELS. OOPS! AND YOU WANT TO BE MY LATEX SALESMAN. I DON'T THINK SO."

◄

Explained: Steering you right

Since you guys always write about the importance of a vehicle's steering feel, would you please put together a definitive list of 10 cars with electric power steering currently in production that have the best feel?

—Justin Mathewson
Toronto, ON

It's no coincidence that the list of cars with our favorite electric-power-steering systems looks a lot like our latest 10Best list*:

- Alfa Romeo Giulia Quadrifoglio
- Cadillac CTS-V
- Chevrolet Camaro*
- Chevrolet Corvette*
- Ford Mustang Shelby GT350*
- Mazda MX-5 Miata*
- Mazda 3*
- Porsche 718 Boxster/Cayman*
- Porsche 911
- Volkswagen GTI*

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knocked all the branches right off the ugly tree, but what do I know? I also can't see paying extra for blue jeans that are ripped and faded before I put them on for the first time. Must be getting old.

—Rick Vornbrock
Lethbridge, AB

I just wanted to comment on your write-up of the Civic, Golf, 3, and Chevy Cruze. Everything seemed fair enough except one thing: premium fuel. I get that only the Honda "required" premium, but the others would have benefited from it also. I know for sure the Golf would have. Feed a Golf 93-octane premium and you can expect a bump of almost 20 horsepower and about the same torque, all the while gaining 2 to 3 mpg as well. I know this as fact from not only personal experience, but it used to be on the APR website based on its testing as well. I can only assume that the Mazda and Chevy would have appreciated the good stuff, too, maybe the Chevy a little more with the turbocharged engine, but both nonetheless. Would the Golf have won? Probably not, but it sure would have smoked the others and probably tied the Civic in the longer tests.

—Reynaldo Torres
Batavia, IL

Few new cars require premium fuel, although most turbocharged engines recommend high-octane gas to make full power. For that reason we tested all the cars in the comparo with 91 octane (the highest available in California) to give the turbocharged cars the best possible acceleration and power—Ed.

It's like you guys are reading my mind. In "One-Car Wonders," Robinson wishes BMW would build "low-mileage E36 wagons." This is exactly why my 1998 M3 sedan is a keeper and its garage mate, a 2005 Legacy GT wagon, a fast and rare unicorn with its turbo and manual transmission, is not. I seem to have found the one Subaru that is (much) less reliable and (much) more expensive to fix than an E36,

"...ROBINSON WISHES BMW WOULD BUILD 'LOW-MILEAGE E36 WAGONS.' THIS IS EXACTLY WHY MY 1998 M3 SEDAN IS A KEEPER."

▼

ONE-
WONDERS
CAR

Editor's Letter:

Pamela Yates was kind enough to invite me to the final fete for her husband, Brock, the man we came to call "the Assassin." The memorial service was held in upstate New York, in April, and I can assure you that there was nary a poltroon, milksop, or pecksniff in attendance.

As my bosses keep reminding me, I'm extraordinarily lucky to have this job. The luckiest part is that it allows me to meet guys like Yates. Through adventures as varied as the coast-to-coast Cannonball and the writing of such inflammatory genius as *The Decline and Fall of the American Automobile Industry*, Brock embodied high-speed rebellion, shattering the rules that served to limit our freedom. He stoked young men's fantasies of driving fast and not giving a shit. And he along with David E. Davis Jr. and Patrick Bedard formed the Holy Trinity of this magazine. When I met him, it was post-post-Cannonball, he had waxed famous, and I half expected him to be someone who thought his name preceded him. If anything, meeting Brock was better than worshipping him from afar. He had a way, as one of his doctors said at the memorial, "of bringing you in." He made you a co-conspirator, his eye ever a-twinkle. Brock succumbed last year to Alzheimer's disease, and what's cruelest to me is that a guy so full of life could be saddled with a disease so intent on extinguishing its force.

His friends and family came from around the country to tell stories about him, about his essential humanity. As the oratory piled up, one of his oldest friends, the well-traveled executive Clint Allen, said: "I sort of feel like Zsa Zsa Gabor's eighth husband on their wedding night. I know what to do, I just don't know how to make it interesting."

Brock was a guy who loved fast, loud, outrageous cars because he loved the guys who built and drove and mastered cars like that. His idol was the hard-living moonshiner-cum-NASCAR driver Curtis Turner. The story goes that Brock, while reporting on the Daytona 500, approached Turner's car on the grid. Brock looked into the cockpit and found Turner asleep, five minutes before the race. Those were his drinking buddies.

We got the best of Brock, as did so many others. He wasn't just a magazine writer—he was a screenwriter, an author, a broadcaster, an organizer, and the consummate husband and family man. What became clear to me as I sat in that room, amazed to find myself there, is that Brock wouldn't have been Brock without Pamela. He called everyone "teammate," but Lady Pamela was his crew chief. Like David E.'s Jeannie, she was his foundation. That teamwork allowed him to be who he really was, a guy hopelessly in love with life and all the best stuff in it.

—Eddie Alterman

INTRODUCING
THE FIRST-EVER
LEXUS LC 500
WHAT STARTED AS PURE CONCEPT, LAUNCHED A NEW ERA OF PERFORMANCE AND DESIGN.
The LC 500 is a collection of visionary ideas. 10-speed Direct-Shift transmission. Near-perfect weight distribution. An innovative suspension system that defies conventional logic, accommodating available 21-inch wheels* within a ground-hugging profile. The LC is also an uncompromising approach to design. Although the first seat design was technically perfect, it was the 50th prototype that had the exact fit and feeling to complement the unique LC driving experience. This intense dedication to craftsmanship and innovation results in a level of refinement you've never felt. A sound you've never heard. And a feeling you have yet to experience. Introducing the first-ever 5.0-liter V8 Lexus LC 500 and Multistage Hybrid LC 500h. Experience the future of Lexus. Experience Amazing.
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and it's nowhere near as engaging to drive. Off to find an E36 wagon!

—Paul Andrews
Lansdale, PA

It must be nice to have someone else pay for your gas. How did you manage to get 28 mpg in the Mazda 3 2.5? I've averaged 34.4 over the course of 10K miles in mine.

—Len Cabrera
Alachua, FL

It's well known to most of our readers that in shaking down test cars, we tend to drive a bit harder than most owners. We also measure fuel economy not by the often optimistic trip computer, but by the number of gallons that go into the tank following a process to ensure consistency. In addition to that, we calibrate the odometer, a second source of error in crowd-sourced mpg—Ed.

As a truck-hating, Golf-driving freak who has owned nothing but small manual hatchbacks since the 1983 GTI, I truly enjoyed "One-Car Wonders." Your style evaluation of the Civic hatch is spot on. All other publications forget that back seats matter.

—Mark Nedde
Madison, NJ

ELECTRIC COMPANY

Exactly where are the third-row rear-facing seats for $2500 located ["2015 Tesla Model S P85D," April 2017]? Do they pop out of the trunk? Couldn't have been a popular option as I don't see it offered on the new models.

—Gary Roelli
Shullsburg, WI

They're still offered. The seats fold out of the floor, but you have to plan before using them. The Model S provides no place to stash the cargo cover or the tray that hides the seats when they're not needed—Ed.

The Tesla's 4000-mile road trip shows why electric cars are a long way off. It took 20 hours to "fuel" the Tesla, and Tesla is the best in the market today in charging and in capacity.

I have taken 4500-mile road trips the last three years. I figure it took maybe two hours to fuel on each trip. Some stops came after 300 miles and a few after 400, with some under 200. The difference between me and the

"EXACTLY WHERE ARE THE THIRD-ROW REAR-FACING SEATS FOR $2500 LOCATED? DO THEY POP OUT OF THE TRUNK?"

►

PHOTOGRAPH BY MICHAEL SIMARI

driver of a Tesla, which is one fantastic vehicle, is that I made the choice. Most of the time we chose to fuel up based on where we wanted to eat, not eating where we had to charge.

There are 170,000 U.S. gas stations with at least 1 million pumps. It takes less than five minutes to fuel an empty car or truck. Until electric cars have a capacity of 350-plus miles and under-10-minute charging, they will be a novelty. Most Tesla owners have other cars. Most owners of cars under $35,000 need that car on a daily basis and can't wait weeks to get their cars serviced.

—Marvin Chosky
Ravena, NY

Just finished reading your write-up of your 40,000-mile experience with the Tesla Model S. Years ago, we used to call a car that had to go back to the dealer that many times a piece of junk. I guess because it's an electric vehicle, it's now called "technically superior."

—Gary Cella
Cos Cob, CT

I laughed heartily as I read your accounts of drafting large trucks on the interstate in the Tesla Model S because of the multiple mentions of "Repair rock chip in windshield." Huh. I'd hate to see what the paint on that hood looks like!!

—Ron Cameron
Winooski, VT

MASS PROBLEMS

Seriously, a 3700-pound Mini ["Cross-hatch Patterns," April 2017]! Isn't that an oxymoron? That's more than two-and-a-half times the weight of the original Mini. Of course, it is 50 inches longer than the original. Sir Alec Issigonis must be spinning in his grave.

—Roger Thomas
Kendal, ON

Never knew that Sir Alec could DJ—Ed.

STEER CLEAR

I totally agree with Eddie Alterman's comments on electric power steering (EPS) ["Editor's Letter," April 2017]. When I was looking for a newer car two years ago, EPS caused some otherwise desirable models to lose many points. Way back in the '50s, when hydraulic power steering first came out, it was widely criticized for its lack of road feel. Within a very short time, that fault was corrected and feel returned. Everything was fine until the push for higher mpg led to the adoption of EPS. But despite our vast knowledge of electronics, feedback systems, and controls, no EPS that I know of offers any amount of feel. Is there some fundamental reason why that is so, or is it that no one up high enough at the car companies cares?

—David Fleming
North Olmsted, OH

Eddie Alterman is right-on regarding steering feel. People ask me why I hang on to my 2009 BMW 528i. It was the last year of hydraulic steering for the rear-drive 5-series, and it can't be duplicated with electric assistance. I have a new Porsche with electrically assisted steering. While the Porsche is better than most, I'll take the BMW as my daily driver.

—Bill August
Plymouth, MA

CALIFORNIA LOVE

Who would have thought that the term "Venn diagram" and the name "Justin Bieber" could happily coexist in the same sentence ["When trying to downshift is

Letter of the Month:

—

I did a Google Street View of your offices and noticed cars are parked backed in. Is this skill a prerequisite to working there?

—Jem Karunungan
Simi Valley, CA

Who says we work?—Ed.

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like playing footsie with a manatee," April 2017]? Greatly enjoyed Erza Dyer's entertaining piece on the Pacific Palisades Lamborghini party. Cars are fun, and so should be the writing about them.

—Greg Bryan
San Diego, CA

Wow! Venn diagram twice in one issue . . . I feel all smartified! But really, a great issue!

—Kristofer Ekdahl
Vista, CA

YOU LIKE NASCAR?

Monster Energy is the perfect sponsor for NASCAR because the series has become nothing more than a scripted reality show ["Bringing the 'Shine Back," April 2017]. It's not stock and it's not racing. Is there one piece of equipment in those race cars that you can find on a street car? If it's really racing, then why do you need a bunch of rules and regulations to make sure you have a competitive, level playing field? I was a loyal NASCAR fan for about 25 years, but I have lost all interest in watching even one race. Remember when a driver like Alan Kulwicki could build his own team and win a championship? Will someone like Bill Elliott ever again lap the entire field under green three or four times to come back from equipment failure and win the race? I want to see people love (or hate) someone like Dale Earnhardt simply because he wins so many races in a Chevrolet. I want a manufacturer like Dodge to embarrass the competition and finish in the top five spots. If NASCAR really wants a "boost," then it needs to return to its roots—because NASCAR has taken good old-fashioned racing and turned it into a monster.

—Jay Dorrell
Effingham, SC

RANTS UNLIMITED

I'm quite fed up with your magazine!

—Dave Gasparoni
Marlboro, ME

Patron Saints

BRINGING THE 'SHINE BACK

MONSTER ENERGY IS NASCAR'S NEW TITLE SPONSOR. GOODBYE, OLD AND WHITE; HELLO, PIERCINGS AND TATTOOS.

by Josh Jacquot

MONEY, MONEY, MONEY, MONEY

BUZZ BLOCKER

ADMIT IT, you like watching a good face punching. We all do. Monster Energy thinks we like it as much as we like NASCAR.

Monster is the new entitlement sponsor of NASCAR's premier racing series, now known as the Monster Energy NASCAR Cup Series, and it's bringing its own brand of entertainment to the races beginning this year. That includes the possibility of freestyle motocross, greenhouse, off-road demos, and yes, even mixed martial arts fights in the pre-race show.

"We built our brand on doing things people think are cool," says Mitch Covington, Monster Energy's vice president of sports marketing. "That won't change here." Americans, evidently, think caged combat is as cool as a three-car wide,

Upfront

CAR AND DRIVER APR 2017

Illustration by DARCY MORCHOWER

Recently, many high-end vehicles have begun featuring diamond-quilted upholstery. At the risk of betraying my age (early 60s!), I feel compelled to comment that this styling trend is dated and cheap-looking. In my childhood, quilted vinyl or leather (frequently in black or red) was the sort of thing seen in tacky family-room bars or in rat-pack swinger movies set in Las Vegas. To see it highlighted inside cars that are targeted to my demographic is, at best, incongruous. Sadly, even Audi, normally a paragon of good interior taste, has succumbed.

—John O'Neill
Silverthorne, CO

How about writing road tests that stay kind of close to the facts instead of trying to impress readers with your prodigious literary coolness? Don't know if you know this, but the Pulitzer Prize bus left the station and you missed it.

Pick up a copy of the Italian magazine *Quattroruote* to see how it's done. You don't even need to know the language. Take notes.

—Simon Zorovich
Matawan, NJ

Allora—*Ed.*

Whatever happened to tires with raised white letters? One day, historians will point back to their disappearance as the beginning of the end of civilization.

—Mickey Skamangas
Fredericksburg, VA

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Printed in the U.S.A.

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Published by Hearst Communications, Inc.
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Reveal of the Month

ROAD MASTER

DON'T CALL THE TOURX A CROSSOVER. BUT YOU MIGHT CALL IT A SUBARUICK. ***by David Beard***

THE STATION WAGON has long faced extinction, but a counterpoint to the rise of the crossover and the decline of the sedan can be found in the current wobbly resuscitation of the wagon. Subaru has done its part to preserve an otherwise unfashionable style, recasting the wagon as an outdoorsy hiking shoe that isn't an SUV. It sold nearly 183,000 Outbacks in 2016. The Audi A4 Allroad and Volkswagen Golf Alltrack, among others, now mimic that template. Latest to the party is Buick, which is getting in on the wagon-conservation effort with its new Regal TourX, the first wagon to wear the tri-shield badge in the 22 years since the Buick Roadmaster Estate wagon expired.

▼ EXTERIOR

It could be said that the Germany-built Buick Regal TourX is spun from Europe's Opel Insignia Country Tourer (Opel having recently been sold by GM to France's PSA Group, maker of Peugeot and Citroën), but let's be honest; the TourX *is* the Country Tourer. The only differences are the badges on the grille and liftgate and on the center wheel caps. The Subaru Outback–like proportions are made beautiful by Mazda-esque styling. Hockey-stick-shaped LED running lights accent the slim headlights—which can be upgraded to LEDs themselves—visually widening the stance. The roof rails sit atop a sleek roofline, highlighted by exceedingly long chrome arches that seem to stretch from the TourX's A-pillars to the A-pillars of the car following it. To give the Regal wagon a fighting chance against Encores and Enclaves in showrooms, molded black plastic trim houses dual chrome exhaust exits in the rear and encompasses the lower fascia, wheel arches, and rocker panels. This "blastic," starkly at odds with the body's fluid lines, provides the desired rugged look and protects the paint for the few who may actually take the TourX off the beaten path. The 18-inch wheels wrapped in Continental rubber are the only wheel-and-tire package available.

001
Both the TourX and its Sportback sibling boast active hoods for pedestrian safety.

002
For added toughness, the TourX's blastic cladding incorporates little mud-flap–like flares at the trailing edges of the rear wheel wells.

photography by JOHN ROE

▼ INTERIOR

The cabin's switchgear, controls, center gauge cluster, and infotainment system are reminiscent of equipment found throughout GM's lineup, but the driver-centric minor controls are canted toward the pilot. A 7.0-inch Apple CarPlay and Android Auto–capable infotainment display is standard on the base and mid-level Preferred trims, and an 8.0-inch display is standard in the top-of-the-line Essence. That most luxurious of TourX trims boasts ample soft-touch plastic, faux-wood trim—on the inside of the car—and leather-wrapped panels with contrast stitching. When properly equipped, the heated and cooled front seats also get the leather treatment. Buick hasn't announced prices, but we figure the TourX will start a little higher than its one direct competitor, the Outback. Expect a base price around $30,000 with well-equipped models surpassing $40,000 when sales start this fall.

SPACE RACE
If you're looking for more cargo room in Buick's crossover lineup, you'll have to go all the way to the top. Only the Enclave has a larger hold. Seats up or stowed, the TourX bests the Encore and the Envision.

To keep the interior a serene environment, the TourX undergoes Buick's Quiet-Tuning, a process to block, reduce, and absorb unwanted road noise. That means additional sound deadening, a different carpet, and a thicker cargo cover compared with its Opel sibling. Wagons are about space, and Buick's new wagon benefits from its long body, which moves it near the top of the class for cargo volume. With the rear seats up, the hatchback is capable of swallowing 33 cubic feet of stuff, or just a little less than a Honda CR-V can manage (39 cubic feet). In the base TourX, a 60/40 folding seat is standard; moving up the trim levels replaces that with a 40/20/40 rear-seat configuration. When the electronically released seat is laid flat, that storage space swells to an impressive 74 cubic feet, one cubic foot more than a Subaru Outback. To keep everything in place, rails along the cargo floor include tie-downs. The hatch also offers a removable Bluetooth speaker for your camping and tailgating needs.

LENGTH STRETCHES TO 196.3 INCHES, MORE THAN A FOOT LONGER THAN A VOLVO V60 CROSS COUNTRY.

▾ CHASSIS

Under its sheetmetal, the TourX uses GM's global Epsilon II, or E2, platform. As with previous Regals, the platform is shared with the Chevrolet Malibu, each vehicle riding on a 111.4-inch wheelbase. The overall length stretches to 196.3 inches in wagon form, 13.7 inches longer than a Volvo V60 Cross Country. Indeed, the TourX is the longest wagon in its class. As in the bow-ties riding the E2 platform, front struts and a multilink rear suspension locate the wheels. Every little bit counts, so the combination of larger tires and different springs net the TourX 0.6 inch of additional ground clearance compared with the also new Buick Regal Sportback sedan, allowing it to clear the steepest driveway transitions.

▾ POWERTRAIN

Propelling the TourX is GM's familiar transverse-mounted, direct-injected 2.0-liter inline-four. The turbocharged and intercooled mill is good for 250 horsepower at 5500 rpm and 295 pound feet of torque starting at 3000 rpm and falling off past 4000 rpm. Its dual overhead cams operate with continuously variable timing for efficiency's sake. At the TourX's launch, power will be routed solely through an eight-speed automatic transaxle, manually shifted if desired. Although it offers no specific time frame, Buick says the all-new GM nine-speed automatic will eventually make its way into the Regal lineup.

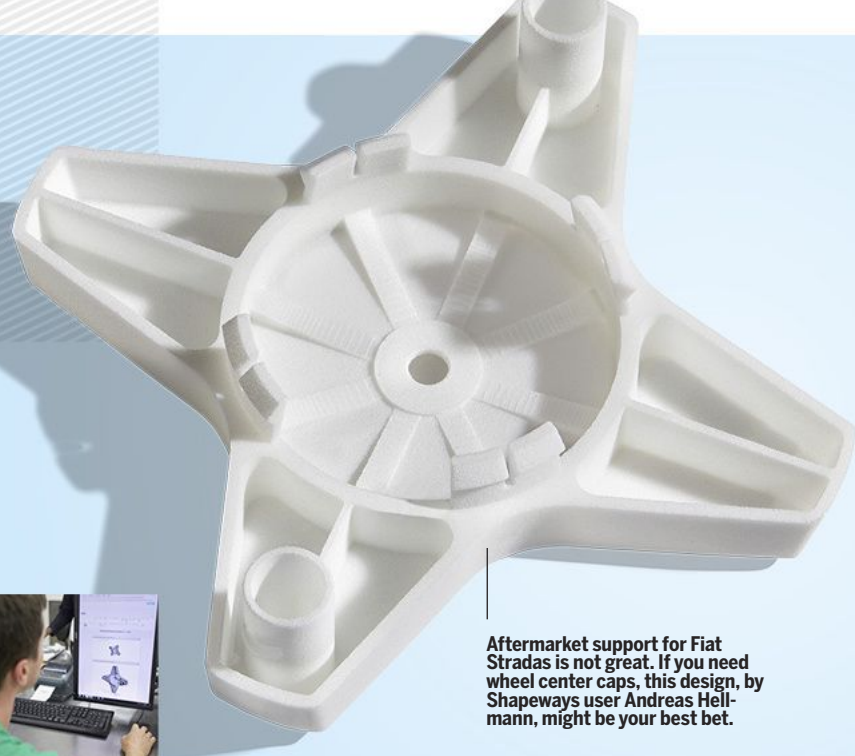
To solidify the TourX's rugged appeal, all-wheel drive is standard, using a system identical to that found in the LaCrosse and the Envision. To accommodate spirited driving or limited-traction situations, Buick uses GKN's twin-clutch, torque-vectoring Twinster rear differential to put power to the ground. While Buick claims there are no other engines planned at this time, GM's all-new diesel 1.6-liter inline-four would sit well in the wagon. It is available overseas in the Insignia, after all.

001
A WAVE OF YOUR FOOT UNDER THE REAR BUMPER WILL OPEN THE POWER-OPERATED HATCH.
002
THE GKN REAR DIFFERENTIAL IS SHARED WITH A NUMBER OF GM VEHICLES—AND THE FORD FOCUS RS.
001
002

A New Dimension

FINE PRINT

THE NAPSTER OF CAR PARTS IS COMING. ***by Clifford Atiyeh***



Aftermarket support for Fiat Stradas is not great. If you need wheel center caps, this design, by Shapeways user Andreas Hellmann, might be your best bet.

IN THE BAD OLD days when you busted one plastic switch on a Pontiac Bonneville, your dealer forced you to buy an entire set. Now you can pay a Russian who builds replica *Star Wars* guns a couple of bucks to ship you a brand-new, OEM-quality part for your old Bonnie. And soon you may want to just make it yourself in your garage.

At this point, an aftermarket car part made by a 3-D printer could save you hours and hundreds of dollars, or it might simply snap in half. But just as computer-aided design rewrote automotive engineering in the 1980s, 3-D printing is looking to revolutionize the replacement-parts business, allowing car owners to create precise copies in their own garages, albeit with varying degrees of success at this early stage.

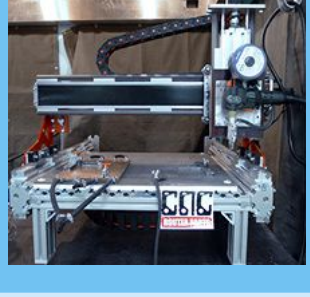
"There's no physical barrier anymore for people to start mass-producing parts," says Peter Weijmarshausen, CEO of Shapeways. A contract printer based in New York City, Shapeways can make any cosmetic part out of fused-filament plastic, steel, and even platinum. While many of its 1 million users hawk scale models and jewelry, a savvy seller can create a custom car part from scratch once the design work has been done. That includes Weijmarshausen himself, who crafted a pair of headrest brackets for his E36 BMW M3. "Only one person needs to solve a problem, and anybody can benefit from it," he says.

Websites such as Yeggi and Thingiverse host CAD files of everything from Ford F-150 fuel-door hinge pins to Donald Trump shift knobs. At 3D Hubs, you upload these files to receive instant quotes from people with 3-D printers near you who'll fabricate any job, no matter how small. With a copy of Autodesk 123D, you can render your own file from a few dozen photographs of the original part, or input numerical measurements into open-source software such as FreeCAD. If you're a true DIYer, you can piece together a $500 printer or drop $3000 for a fully assembled unit from Airwolf 3D, which celebrated Mustang tuner Saleen Automotive uses to make shift-knob parts.

A HIGH-SIX-FIGURE PRICE PUTS SHAPEWAYS' PRINTER WELL BEYOND WHAT THE AVERAGE DIY USER WOULD BUY. ITS LASER-SINTERING PROCESS SHOOTS A LASER INTO A TRAY OF PLASTIC POWDER, FUSING IT LAYER BY LAYER. OTHER FORMS OF 3-D PRINTING DEPOSIT NEW MATERIAL, AS IF FROM A BIG TUBE OF GLUE. LASER SINTERING ALLOWS MULTIPLE PARTS TO BE "CAST" FROM A SINGLE TRAY OF POWDER.

But if 3-D printing sounds complex and geeky—not unlike Mercedes diesel owners recycling McDonald's cooking oil—it is. We're not at that point where 3-D printing is turning automakers, suppliers, or eBay upside down. Even using high-quality plastics such as ABS, polypropylene, and polycarbonate, parts made with layers of melted plastic aren't as strong as those that are injection molded. Printer resolution, which dictates the fineness of the part being created, varies widely with the printer and the chosen material. Even the experts don't recommend building load-bearing parts from a 3-D printer, and without a laser scanner that costs as much as a Ford Focus, you couldn't replicate that broken control arm anyway.

But thanks to amateur support on car forums, you don't need to own any equipment to reproduce basic plastic parts. Anybody need cheap dash trim for a VW Vanagon?



I AM ALUMINUM MAN

When plastic wasn't fantastic enough, Joshua Pearce, a professor of materials science and electrical engineering at Michigan Technological University, built a 3-D metal printer by cobbling MIG weld guns onto a CNC routing table for less than $4000. Pearce says his finished aluminum products have "remarkably high strength" compared with traditional casting and stamping methods. "There is a learning curve, but anybody who can rebuild a car can handle it," he says.

photography by DANIEL BYRNE

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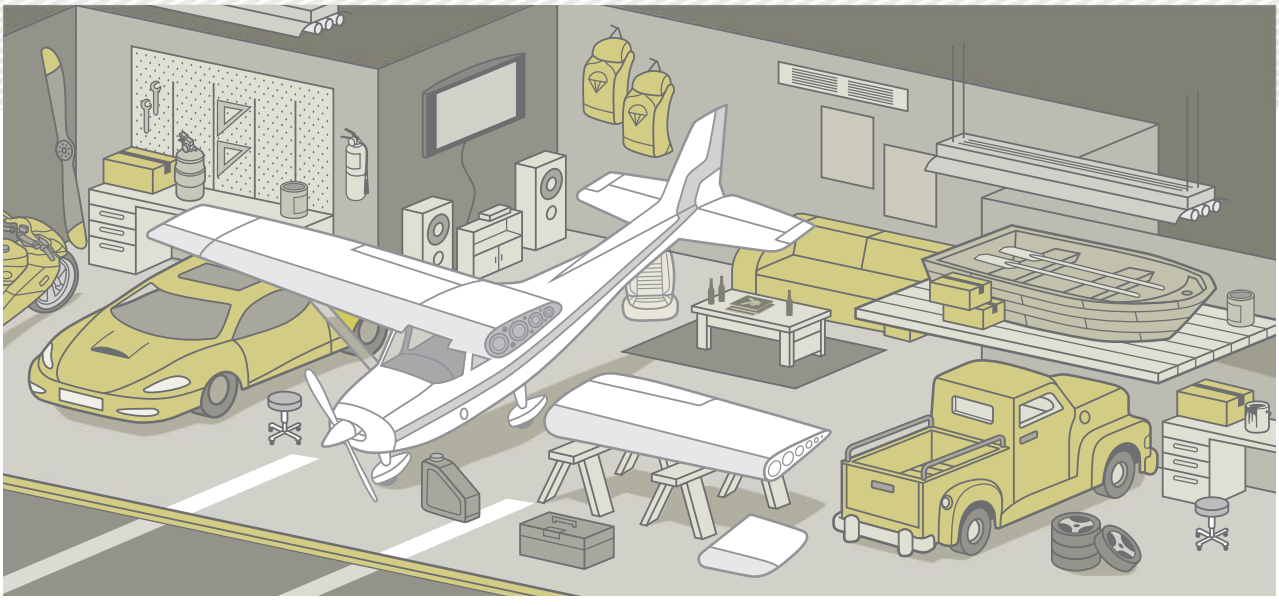

Stuffing

HANGIN' TOUGH

IF YOU NEED MORE PARKING, TRY AN AIRPLANE HANGAR. BUT FOLLOW THE FAA'S RULES. ***by Matthew Jancer***

YOU'VE RUN OUT of garage space and cars are stacked three deep in your driveway. Time to get more real estate! Know where there's lots of room, often cheap? Airports. A hangar usually comes with security, heat, and electricity, making it the perfect place for your collection. Hangars near big cities can rent for less than $400 per month. Half that at smaller airports gets you 1000 private square feet for automotive hootenanny.

But be careful how you go about your business. Responding to a wave of people using airport hangars as personal workshops and garages, the Federal Aviation Administration rewrote the rules to shove out non-aeronautical users. The FAA wants airplanes in hangars, and anything that gets in the way of aeronautical purposes will raise a red flag as of the first of this month. Still, general aviation is in the depths of a 30-year slump. Airports need tenants. Abide by the spirit of the law, and you can still make an airport hangar your cheap garage. Here's how:

MOONLIGHT AS AN AIRCRAFT SUPPORT SHED An FAA spokeswoman we talked with says a hangar must house an aircraft, but the specific wording of the policy leaves room for interpretation. Using a hangar as a workspace or for storage of aircraft-handling equipment satisfies one of the federal administration's definitions of "aeronautical use." Workbenches and tools can be shared for car maintenance, but you might also want to store your buddies' skydiving gear or flying paraphernalia, such as wheel chocks, dollies, and tow bars for dragging aircraft out of hangars.

PETITION THE FAA If you want to drop the flyboy façade, the airport can request—on your behalf—that the FAA approve non-aeronautical use for a period of three to five years. If that fails, petition for a month-to-month lease. Be aware that the FAA policy states that airports must charge a fair-market rate for non-aeronautical use, which likely means this approach will cost more. And written into either short-term contract is a clause stating that the airport can kick you out with 30 days' notice if it gets an offer from an aviation tenant.

FRONT AND CENTER

THE FAA POLICY STATES THAT ANYTHING ELSE IN A HANGAR MUST "NOT INTERFERE WITH MOVEMENT OF AIRCRAFT IN OR OUT OF THE HANGAR, OR IMPEDE ACCESS TO OTHER AERONAUTICAL CONTENTS OF THE HANGAR." SO KEEP A PATH CLEAR.

RENT A NON-FAA HANGAR Even a privately owned hangar at an airport that accepts federal grants has to follow the new standards. The exceptions are hangars at airports that have no federal obligations, where you're only held to the facility's own rules. They're usually regional or grass-strip airports, and a lot of them need the money. They'll be happy to rent you a vacant hangar for your car collection. It may not be in the middle of a major city, but that could be a good thing, too.

MAKE FRIENDS WITH A FLYER Outside the rows of hangars at most airports, you'll see Pipers, Cessnas, and Mooneys tied to anchors in the pavement, kept outside permanently. Sun eats into their paint, and their owners are unable to keep gear or tools nearby. But a tie-down is cheaper than a hangar. If you trust a tie-down lessee, offer to split a hangar. His or her payment won't change, and you can pick up the difference. Or find a hangar tenant who'll trade floor space for help with the bill. Just keep your cars and motorcycles out of the plane's way.

BUILD A PLANE Then you'll have more toys. As long as you're using a hangar to build a kit plane or glider or to refurbish an airplane, the FAA is satisfied. Keeping an inactive aircraft inside indefinitely doesn't count, though. The FAA doesn't specify a hard deadline for getting an aircraft operational but gives airport managers the leeway to boot tenants in favor of someone with an immediate need.

illustration by TODD DETWILER

Oscar Mayer

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Reading about Reading

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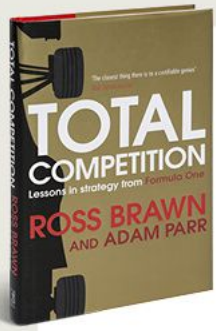
SIXTEEN BOOKS EVEN MORE ENLIGHTENING THAN THE MAGAZINE YOU'RE HOLDING.
by Peter Manso

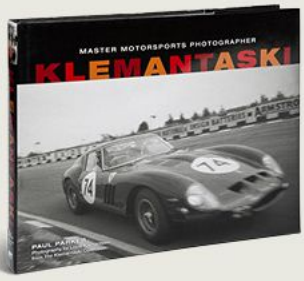
A LIST OF "BESTS" IS ALWAYS TEMPORARY, but these books will add weight to anyone's corpus of knowledge for cars, racing, and race drivers. Our list includes recent titles as well as some oldies that deserve reacquaintance. And nobody's automotive library is complete without Sir Stirling Moss's *All but My Life: Face to Face with Ken Purdy,* Purdy's *The Kings of the Road*, Denis Jenkinson's *The Racing Driver: The Theory and Practice of Fast Driving,* and *The Reckoning* by the late David Halberstam on the parallels of the American and Japanese car industries.

AND ONE MORE
We've previously profiled occasional *C/D* contributor P.J. O'Rourke's *Driving Like Crazy: 30 Years of Vehicular Hell-bending*, but that doesn't mean you don't still need it.

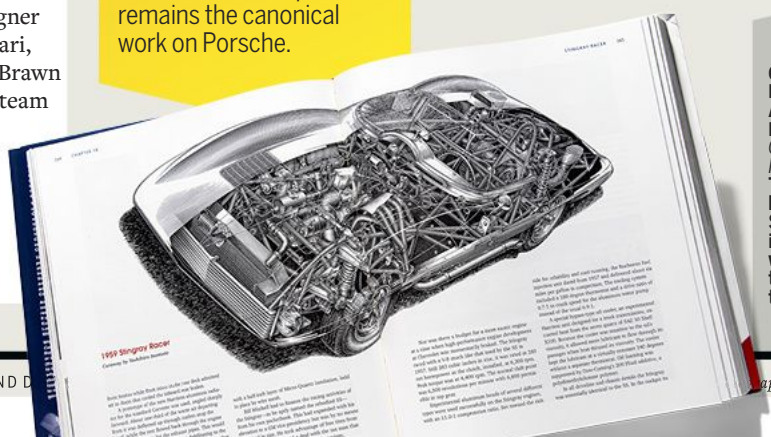


◂ Total Competition: Lessons in Strategy from Formula One
Ross Brawn and Adam Parr; Simon & Schuster
A valuable peek behind the veil at the politics of Formula 1 and the sport's economics over the past 20 years. Includes portraits of Bernie Ecclestone, Michael Schumacher, Lewis Hamilton, designer Adrian Newey, and the Jaguar, Ferrari, Honda, and Benetton teams where Brawn held sway as technical director and team principal. The account is marred by the tendency of the authors to fall back on simple self-help mantras and overly weighty references to classical texts such as Carl von Clausewitz's *On War* and Sun Tzu's *The Art of War*. Still, a winner.

▾ Corvette: America's Star-Spangled Sports Car, the Complete History
Karl Ludvigsen; Bentley Publishers
The best book on Corvettes: comprehensive, informative, easy to read, and not overly technical. It's no surprise, as Ludvigsen's *Excellence Was Expected* remains the canonical work on Porsche.



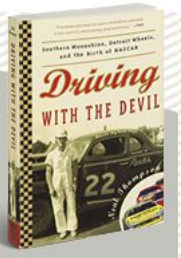
► KLEMANTASKI: MASTER MOTORSPORTS PHOTOGRAPHER
Paul Parker, photography by Louis Klemantaski; Motorbooks
Hands down, the most evocative photos of cars at speed—of the phenomenon of speed itself—ever produced. It should be remembered that Klemantaski, old-fashioned Leica in hand, worked at a time when track photographers had such close access they could get within feet of cars sliding by at barrier-less venues like the Nürburgring and Spa-Francorchamps. Photography as high art, even by Avedon or Cartier-Bresson standards.



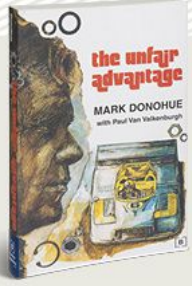
GOING FASTER! MASTERING THE ART OF RACE DRIVING
Carl Lopez; Bentley Publishers
The go-to manual by the Skip Barber School's emeritus instructor, a man who knows how to drive and how to teach.

aphy by CJ BENNINGER

BLACK NOON: THE YEAR THEY STOPPED THE INDY 500
Art Garner; Thomas Dunne Books/St. Martin's Press
Writing a book is hard, especially when the book in question is based on meticulous research that surfaces as page-turning prose. This is such a page turner on the 1964 Indy 500, which incinerated Eddie Sachs and rookie Dave MacDonald on the second lap and left the racing world aching.

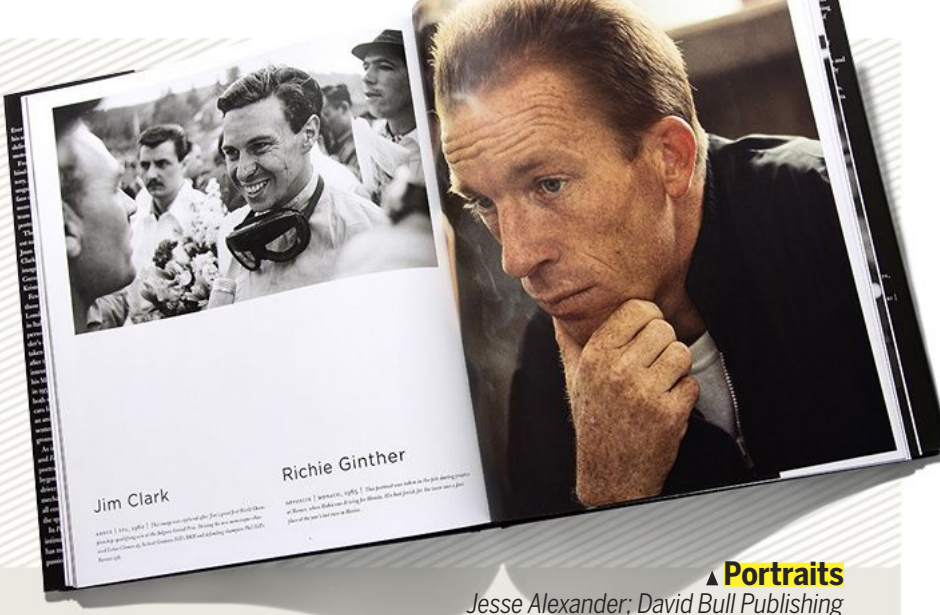


▲ DRIVING WITH THE DEVIL: SOUTHERN MOONSHINE, DETROIT WHEELS, AND THE BIRTH OF NASCAR
Neal Thompson; Three Rivers Press/Crown Publishing
Thompson chronicles NASCAR's moonshiner origins in the Depression-wracked South: divorces, drunks, knife fights, and backroad wrecks galore, as well as the "good ol' boys" (including the then young and not-so-kempt Bill France) who made American stock-car racing into the gold mine it is today.

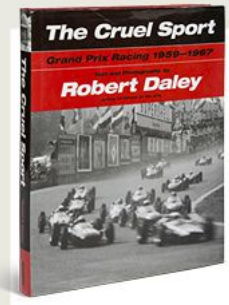


▲ THE UNFAIR ADVANTAGE
Mark Donohue with Paul Van Valkenburgh; Bentley Publishers
Written shortly before the death of the great Mark Donohue and recently reissued, this book does something very few racing memoirs manage to pull off: make readable the infinitely boring but indispensable business of setting up a car to win. Being at Donohue's side as he prepares his Indy, Trans-Am, and Can-Am mounts, we see the all-consuming passion that carried this man to championships, including the Indy 500.

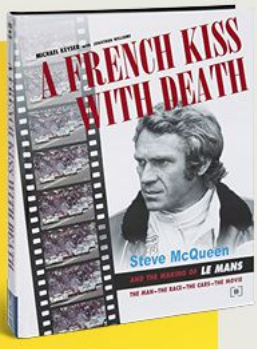
THE LIMIT: LIFE AND DEATH ON THE 1961 GRAND PRIX CIRCUIT
Michael Cannell; Twelve/Grand Central Publishing
A chilling account of the Phil Hill/Wolfgang von Trips duel for the 1961 Formula 1 Championship. The portrait of Hill, who cooperated with the author, gives us a close-up of this oddly introspective man who played the classical organ, was afflicted with ulcers, and suffered from bad nerves before every race.



▲ Portraits
Jesse Alexander; David Bull Publishing
As the title suggests, this is a book of portraits, some posed, some candid, of the most important racers of the '60s and '70s. There's Innes Ireland cracking his wonderfully raffish smile; a wasted Jimmy Clark just after winning at Spa; and a recently retired, grinning Dan Gurney with wife Evi, happy to have survived a lifetime of racing during which, he once explained to us, he'd lain awake in bed one night, counting the number of colleagues who'd perished in racing cars until he had to stop at 28. They're all here, all the faces, all revealed as, above all, human.

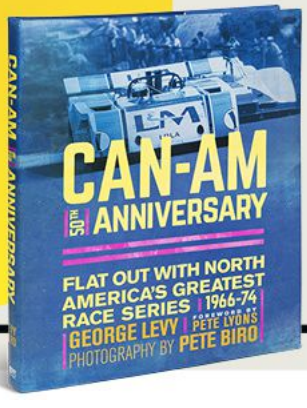


◄ The Cruel Sport: Grand Prix Racing 1959–1967
Robert Daley; Motorbooks
When Dan Gurney crashed into the crowd at the Dutch Grand Prix in 1960 and killed a young spectator, he commented to author Daley, "This is a cruel sport." That's how close Daley was to the action, and it shows in his incandescent portrait of Grand Prix racing during the sport's dangerous glory years. The author was a deputy commissioner of the New York City Police Department and has written scads of crime novels. It's no surprise, then, that there's a Hemingwayian muscularity here that gives this book a no-bullshit quality that's rare in sports writing, whether it's about the NFL, NBA, or driving at the limit in open-wheel cars at a time when drivers wore T-shirts and flimsy cork-lined Cromwell crash hats.



► A FRENCH KISS WITH DEATH: STEVE McQUEEN AND THE MAKING OF LE MANS
Michael Keyser; Bentley Publishers
Replete with photos, this is a chronicle of McQueen's passionate drive to make the ultimate racing movie, which cost the star his marriage and nearly his career. Unlike many racing authors, Keyser knows a thing or two about racing. His familiarity and understanding of the world makes *French Kiss* a particular pleasure.

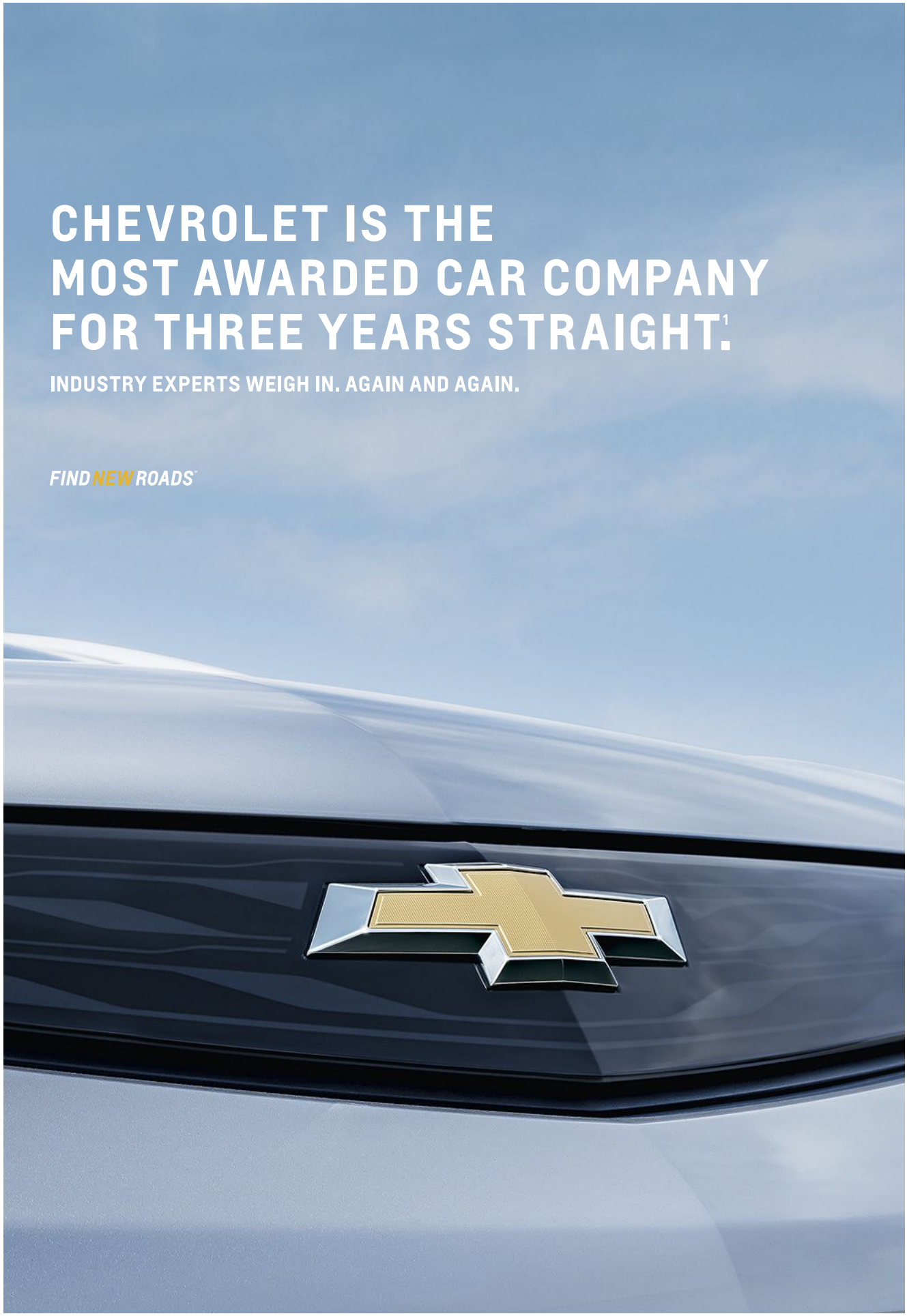
▼ Can-Am 50th Anniversary: Flat Out with North America's Greatest Race Series, 1966–74
George Levy, photography by Pete Biro; Quarto Publishing
The best account we have of the fierce, open-spec Can-Am series, which lasted eight years and featured almost all the world's greatest drivers, many of whom Levy personally interviewed for his fine text.



SHELBY COBRA: THE SNAKE THAT CAPTURED THE WORLD
Colin Comer; Motorbooks
From the early 260 Cobras to the Ferrari-beating Daytona Coupes, from Ken Miles to Bob Bondurant, and, of course, the garrulous, limelight-loving Shelby himself, this book by *Road & Track* contributing editor Comer gives the complete history, including the SoCal hot-rodding scene from which the Cobra coiled forth.

▲ AUTOMOTIVE HANDBOOK—9TH EDITION
Robert Bosch; Bentley Publishers
A handy 1500-page encyclopedia of everything automotive; chockablock with info, diagrams, pictures, tables, and charts.

Side Glances, Volume 3: 1998–2002
Peter Egan; Brooklands Books
Another from the *Road & Track* crew, this time a collection of easily digested columns from the magazine. Because Egan's a Midwest boy through and through, his writing calls to mind the folksy easiness and sunny wisdom of Garrison Keillor, which is certainly no bad thing.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2017

MOTOR TREND

CAR OF THE YEAR®

2017 CHEVROLET BOLT EV

To select the vehicle it deems worthy of such a high distinction, *Motor Trend* magazine puts vehicles through their paces to find the one that best represents exceptional value, industry superiority and most significant development in engineering and design excellence. Chevrolet came out on top. All cars are run through the complete set of *Motor Trend* tests — acceleration, braking, figure eight — with focus on such qualities as handling, ride quality and refinement. Standard car tests include skid-pad ratings and quarter-mile times, with the track run conducted by Sports Car Club of America-licensed testers under normal test-drive conditions.

2017

J.D. POWER

VEHICLE DEPENDABILITY STUDY

2014 CHEVROLET SONIC, CAMARO, TAHOE AND SILVERADO HD

Dependability is essential in any vehicle, and Chevrolet is the only brand to receive J.D. Power Dependability awards for cars, trucks and SUVs two years in a row.[2] This year, it received "Most Dependable Small Car, Midsize Sporty Car, Large SUV and Large Heavy Duty Pickup." To determine its final list, J.D. Power examined issues reported over the past 12 months of ownership by original owners of 3-year-old vehicles. The study covers 177 specific symptoms grouped into eight major vehicle categories that include engine, transmission and the driving experience to interior ergonomics and audio, communication, navigation and controls.

2016

EDMUNDS.COM

MOST POPULAR ON EDMUNDS.COM & EDMUNDS TOP RATED

2016 CHEVROLET IMPALA, TRAVERSE, CORVETTE, CAMARO ZL1 AND VOLT

Chevrolet has six nameplates across six different segments that have been recognized by Edmunds.com in 2016. These designations include 2016 Most Popular on Edmunds.com and Top Rated. A Most Popular on Edmunds.com designation is given to the vehicles that had the most shopper consideration on Edmunds.com from January 1, 2015, through November 16, 2015. A Top Rated designation is bestowed upon the vehicles given an "A" rating by Edmunds.com based on its standardized road-test loop and test-track evaluation.

2017 IIHS

TOP SAFETY PICK

2017 CHEVROLET MALIBU AND VOLT

The Chevrolet Malibu earned a Top Safety Pick when equipped with the available Driver Confidence Package. The Chevrolet Volt received a Top Safety Pick+ when equipped with the available Driver Confidence II Package. To qualify for a 2017 Top Safety Pick, a vehicle must earn good ratings in five crashworthiness tests as well as an advanced or superior rating for front crash prevention. To qualify for a 2017 Top Safety Pick+, a vehicle must meet the requirements for a Top Safety Pick, plus have an acceptable or good headlamp rating.

2017

CAR AND DRIVER

10BEST

2017 CHEVROLET BOLT EV, CAMARO AND CORVETTE GRAND SPORT

Each year, dozens of new cars are put through thousands of miles of cumulative evaluation to determine the annual list of the very best automobiles for sale in America. And Chevrolet has risen to the top again and again across multiple segments. Winning isn't easy. In order to take home a trophy, a vehicle must offer good value, excel at its given mission and, critically, deliver a pleasurable driving experience. That's something that's built into every vehicle Chevrolet makes.

2017

KELLEY BLUE BOOK

BEST RESALE VALUE

2017 CHEVROLET BOLT EV, COLORADO, SILVERADO HD AND SUBURBAN

Resale value is important to any vehicle, and Chevy tops the list. The 2017 Kelley Blue Book Best Resale Value Awards are based on best retained value over the first five years of new vehicle ownership.[3] Resale value projections take into account sales data, market conditions for each vehicle, competition within vehicle segments, expectations of the future economy and the combined experience of Kelley Blue Book's team of analysts.

1 Based on recognized industry awards for 2014–2016 year-end totals. 2 The Chevrolet Sonic, Chevrolet Tahoe, Chevrolet Silverado HD and Chevrolet Camaro received the highest numerical scores in their respective segments in the J.D. Power 2017 U.S. Vehicle Dependability Study, based on responses from 33,560 U.S. original owners of 2014 model-year vehicles after three years of ownership about problems experienced in the past 12 months, surveyed in October–December 2016. Your experiences may vary. Visit jdpower.com. 3 Vehicle's projected resale value is specific to the 2017 model year. For more information, visit Kelley Blue Book's KBB.com. Kelley Blue Book is a registered trademark of Kelley Blue Book Co., Inc.

CHEVROLET

Back in the days when I had the courage to board a commercial aircraft, I remember a few transatlantic trips where I was given a little bumper sticker that could be affixed to the side of my seat. It said, "Wake me for meals."

Wow. Really? Wake me for belching, too. That was during an era when you daily saw bumper stickers that read, "America: Love it or leave it!" At the time, plenty of us wanted to commission our own that read, "America: Love it and fix it."

Speaking of using your car as a biographical information center, I've recently seen five or six bumper stickers—all on pickup trucks—that read, "If you take my guns, *this* is my weapon." It's a little hard to fathom the message. Does it mean that, during holdups, the truck will be brandished for drive-through capers? What's more, if your vehicle bears a message that maybe establishes a deadly threat, won't you ensure an increase in roadside chitchats with nervous patrolmen?

At the hardware store, I met a Californian in a gray Nissan GT-R who'd purchased one of those license-plate covers promising to foil red-light cameras. As usual, the plastic had turned nicotine-stain yellow, and the plate was incomprehensible to both cameras and eyeballs. "Never got a ticket in the mail," Mr. California boasted, "but I got pulled over twice for having an obscured plate."

And now, guess what's back? "Buy American" bumper stickers are what's back. I thought they had dried up and peeled off in the Nixon administration. I recall a trio of cars we were taking to the Chrysler proving grounds: a Honda Accord, a Subaru Legacy, and a Toyota Camry. When we stopped at a convenience store en route, a customer grabbed my arm and said: "Why don'tcha test cars made in America?" The tat on his neck looked like recent prison work, so I gave him a smile instead of a snappy comeback, which I didn't have anyway. But then I remembered that all three of our test specimens—plus our Toyota Sienna photo van—had been built in America. If you're a cheerleader for "Buy American," please attach to your pompoms a chart advising where stuff is made. Plus, I'll bet you $20 your pompoms came from China.

You may have heard UAW president Dennis Williams proposing a "Buy American" ad campaign. The last time we stirred that mixed stew, it gave the Big Three carte blanche to relax on quality control and on R&D and on their future ability to wake me for meals. If you're blindly loyal to "Buy American," don't you undermine capitalism's essential better-mousetrap foundation? I don't know, either. My parents overdid it a little on my fluoride treatments. And not that it's important or anything, but why resurrect this xenophobia just as Fiat Chrysler, Ford, and GM are, if not exactly rolling in profits, at least having trouble counting them?

Well, the reason, I'm told, is that America is desperate to regain lost jobs. Which is odd, because our unemployment rate right now is hovering between a classically low 4.5 and 4.9 percent. What jobs, exactly, are we talking about? Our president says 94 million Americans are out of the workforce. The Department of Labor—who, you know, studies these things—says that 88 million folks who did not have a job in 2016 *did not want a job*. They're coagulated-gravy semiretired boomers, like me, with a happy hour that begins right after the prunes and poached eggs.

"No, no, no," they say. "We mean *high-paying* jobs." I've yet to see a dollar figure attached to that utterance, but I assume it refers to something beyond minimum wage at Burger King. What happens if we *do* slap a 20 percent tariff on, say, a Mexico-built Ford Fusion? If you bought your Fusion for $25,000, would you now pay $30,000 to replace it? How does an overpriced and thus poor-selling Fusion make Ford more competitive against Germany, Japan, and Korea? For some reason, I smiled the other day when Mexico's economy minister said: "The moment that they say, 'We're going to put a 20 percent tariff on cars,' I get up from the table. Bye-bye."

And now I'm seeing "America First" bumper stickers, whose message in part means banning selected immigrants. Be careful about that, too. The Center for Automotive Research's Richard Wallace recently complained to *Automotive News*, "There's not enough [automotive engineers] to start with."

I don't have the mental equipment to comprehend trade issues, but I do recall that America had already lost half its manufacturing jobs *before* NAFTA took effect, and that was 23 years ago. So all of this feels as if we're just chasing our own tails until we've gnawed off all the fur. I like what Saul Bellow said: "A great deal of intelligence can be invested in ignorance when the need for illusion is deep."

So paste your bumper stickers on your fridge, where I can't see them. Bumper stickers don't inform; they incite, they discombobulate. We need to be bobulated.

John Phillips

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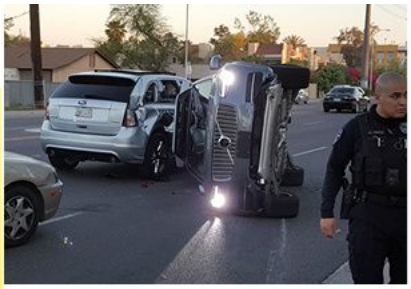
A Volvo lying on its side in Tempe, Arizona, wouldn't normally rate a national headline. After all, Volvo has long asserted that the best attributes of its cars reveal themselves only in a crash. But this was an autonomous Volvo, part of a

small test fleet Uber operated in Pittsburgh, San Francisco, and Arizona. The latter had welcomed Uber with open pro-business arms after the company and the California DMV got into a semantics spat, since resolved, over a $150 permit. The Cal DMV had revoked the registrations for Uber's 16 test vehicles, and if the bureaucrats were motivated by the fear of a couple tons of undercooked technology circulating among the driving public, those fears seem to have been vindicated by the photos of the capsized Volvo.

It doesn't matter that, by all accounts, it wasn't the fault of the Volvo's computer that a driver turned suddenly in front of the oncoming robo-car, giving neither it nor the human minder aboard time to avoid the impact. Autonomous cars will live in a world of random surprises. Note that around 17.5 million light-duty vehicles were sold last year, swelling the national fleet to more than 240 million vehicles, and only the most infinitesimal percentage of them has any autonomous ability whatsoever. That will be true for this year as well. And 2018, '19, and '20.



CTRL-ALT-DELETE: UBER'S UPENDED VOLVO IN TEMPE LAST MARCH.

At least for the next decade or three, autonomous cars will have to contend with the many heteronomous cars already on American roads, including those driven by a very common form of idiot who hooks a left in front of oncoming traffic.

Which is why autonomous-car development has moved on from the impossible task of thinking up and programming a computer to respond to every conceivable driving scenario to getting cars wired up with sensors and on the road to see what it's really like out there. As you read this, these cars are sponging up so much data through their unblinking eyes that it would exhaust the memory of the MacBook Pro that I'm writing this on in under a minute. Road signs and signal timing and lane striping; merges and T-junctions and fourways; the effects of wind and rain and glare and shadow; the driving style of tailgaters and dawdlers and the distracted and the disoriented; it all goes onto the hard drive.

A friend who works in so-called big data told me recently that the digital information generated by these test cars measures out in petabytes per day, a petabyte being 1 million gigabytes. All that data must be filtered and analyzed for the patterns that we human drivers know from experience. That's a job for open-source programs such as Hadoop, a platform named after a child's stuffed elephant, that make it easy to spread really big processing jobs over many computers. The people in the machine-learning trade figure this is the best way to teach a computer to drive; just get it out on the road, the same as your teenager.

Our world is changing; machinery matters less than software. Mazda R&D chief Kiyoshi Fujiwara told me at the Detroit auto show this year that in the age of electric vehicles, the powertrain, that core technology that is so important to the identity of a car brand, will become just another purchased component. It is the software, the brains, that the company must own to call itself an automaker. Along those lines, Honda recently opened its R&D Center X to focus on robotics, machine learning, and artificial intelligence. It also launched a software lab on the 27th floor of a Tokyo skyscraper that has all the beanbag accouterments of a Silicon Valley computing mosh pit, the better to attract the keen young programming minds that are now in such high demand in virtually every other industry. Stanford University artificial-intelligence expert and Honda consultant Edward Feigenbaum explained to *Automotive News* that Honda's "current R&D leadership saw the need to move beyond the mechanical engineering of the past toward a digital future dominated by software, not mechanism." Imagine Honda's museum of the future, where little black boxes with blinking lights are displayed proudly next to examples of VTEC and CVCC.

The kids in my high-school lunchroom talked about the cars they craved, while the few computer geeks huddled in a corner speaking in BASIC and other foreign languages. I haven't been in a school lunchroom in a while, but by all reports, the ratio has pretty well reversed. The geeks won, judging from all the electronic devices about and the kids who say they want to go into computers. We who delight in the finely orchestrated motion of cams pressing on valves and forests of connecting rods cavorting in a perfect balance of lubricated harmony increasingly look like rust-age dinosaurs. Eventually they'll put us in museums, too.

Aaron Robinson

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It's been a while since I've heard of any car company paying big money to someone with a vague New Agey job description, which means the time is ripe for me to cash in on that lucrative sector. I figure that my angle is to tell them

things that ought to be obvious but somehow aren't, so I'm going to call myself the Innovation Dictator. (I was gonna go with Innovation Consultant, but autocracy is so hot right now.) I hereby invite product planners and design directors to consult me whenever they've got an idea that just might be cockamamie. What kind of ideas? Glad you asked.

Let's say a designer comes to me and says, "We're thinking about this new idea for a shifter." I'll say: "Stop right there. It's stupid." The shifter is a solved problem. Enough with the novel shifters. But this designer just has to explain how the dowdy shifter is about to become sexy, modern, and so very it. TMZ will hound this shifter. This shifter will have 2.7 million followers on social media. If this shifter were a hotel, it would have no front desk and you'd check in through Snap, and maybe the elevator would be, like, hidden in a tree that you climb inside like an elf.

"Here's the problem," the designer would say, cueing up PowerPoint to explain something that is not actually a problem. "A boring old shifter, you pull back once for reverse. Drive is all the way down, park at the top. You don't even have to look at it, let alone think about it. It's safe, easy to use, and—record scratch!—just like your father's shifter. And your grandfather's. Although maybe not your great-grandfather's, because back then you'd have the riding mechanic climb out on the hood and close the fargle valve so you could put the clutch petcock at 2 o'clock and then gently unwind the torsion retainer to engage the dogleg and take just enough pressure off the main bearings that you could slide the primary actuator up and to the left, then down, then back up, then diagonal, and that's how you shifted to second while pursuing the Hun.

"So anyway, our new shifter is entirely gesture-based, which frees up valuable console space for those wireless phone chargers that are probably rewriting your DNA and don't work with iPhones. Shifting is entirely crowdsourced and updated via the cloud, so if you don't like the reverse gesture, not to worry—tomorrow it might be different! And yes, we did learn the hard way not to let the internet choose the gestures. Rest assured, you won't actually need to pantomime autoerotic asphyxiation to put your car in park. We also extend our apologies to James Corden and Lady Gaga, who backed through a storefront while voguing during Carpool Karaoke. But now it's all sorted out, and our trademarked Dab to Drive is just hitting dealers. For reverse, you pull your ear like you're giving the signal to bunt. For neutral, you just make a face like 'Hmm, I wonder what Dan Quayle is up to right now?' It's totally intuitive!"

Well, I'm sorry we all had to sit through that imaginary presentation, but just know that real ones like that happen every day around the world. Nobody wants to be seen as stodgy and everyone wants to sell new capabilities, so we end up driving around with a bushel of half-baked ideas.

As Innovation Dictator, I'm forced to decree that the crazy shifter is not alone in its pointlessness [see: "Bullsh!t," p. 076], and there are a few other features we'll have to abandon until they actually work, a point which may or may not coincide with the heat death of the universe. These features include, but are not limited to: Voice recognition. Any form of in-car joystick, mouse, or doodle pad. Hill-descent control. Fake wood trim. In-dash apps. Capacitive-touch anything. Rear-seat entertainment systems that require an advanced degree from MIT to operate. Any digital representation of trees that grow leaves if you drive like a dweeb. And rear liftgates that are supposed to power open when you swing your leg under the rear bumper, but don't, so you're standing there with your groceries, sweeping the leg like the Karate Kid while your car laughs at you. Get a load of this jamoke doing Dance Dance Revolution instead of pushing a button on the key fob!

Lest you think the Innovation Dictator is a troglodyte, allow me to remind you that the Innovation Dictator will not be questioned! But I can commend some worthy additions to our lives. Such as: Head-up displays. Electrification. Rev matching on manual transmissions. Line lock. Lane keeping that intervenes only if you're actually going out of your lane. Remote start. Power doors. Adaptive cruise control. Easily removable truck tailgates. Performance data recorders. Quality cloth seats. Capless fuel fillers. And, as you can learn from my Match.com bio, I enjoy eight-speed transmissions and 10-speed transmissions but not, for some reason, nine-speeds.

Well, as they say in the biz, they can't all be intermittent wipers. Now let's get back to work on puddle lights that project indecipherable logos on the ground. We're almost there on that one.

Ezra Dyer

GO WHERE INSPIRATION TAKES YOU.

When creating the first-ever Toyota C-HR, Toyota's team of global designers was inspired by a single theme: the diamond, an iconic gemstone known for sophistication and strength. They crafted the C-HR's sleek lines and distinctive exterior to create a silhouette that resembles a diamond on its side. They also made sure its sporty 18-in. alloy wheels* provide an appealing, yet strong, base. And if something as small as a diamond can take Toyota in a new direction, imagine where you could go in a C-HR.

TOYOTA | *Let's Go Places*

Prototypes shown with options. Production models will vary. *18-in. tires are expected to experience greater tire wear than conventional tires. Tire life may be substantially less than 24,000 miles, depending on driving conditions.

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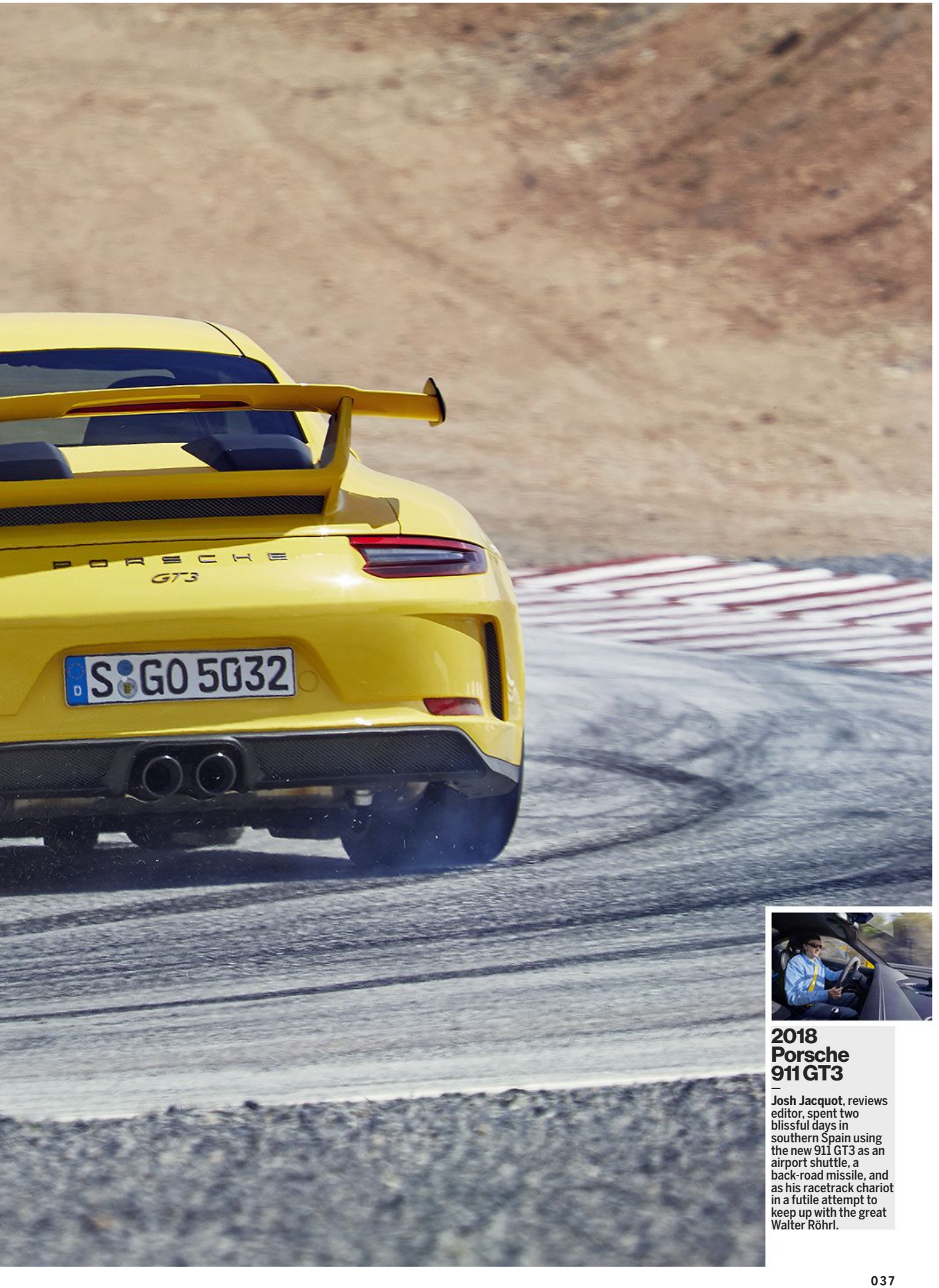
Feel



2018 Porsche 911 GT3

—

Josh Jacquot, reviews editor, spent two blissful days in southern Spain using the new 911 GT3 as an airport shuttle, a back-road missile, and as his racetrack chariot in a futile attempt to keep up with the great Walter Röhrl.

Lucky

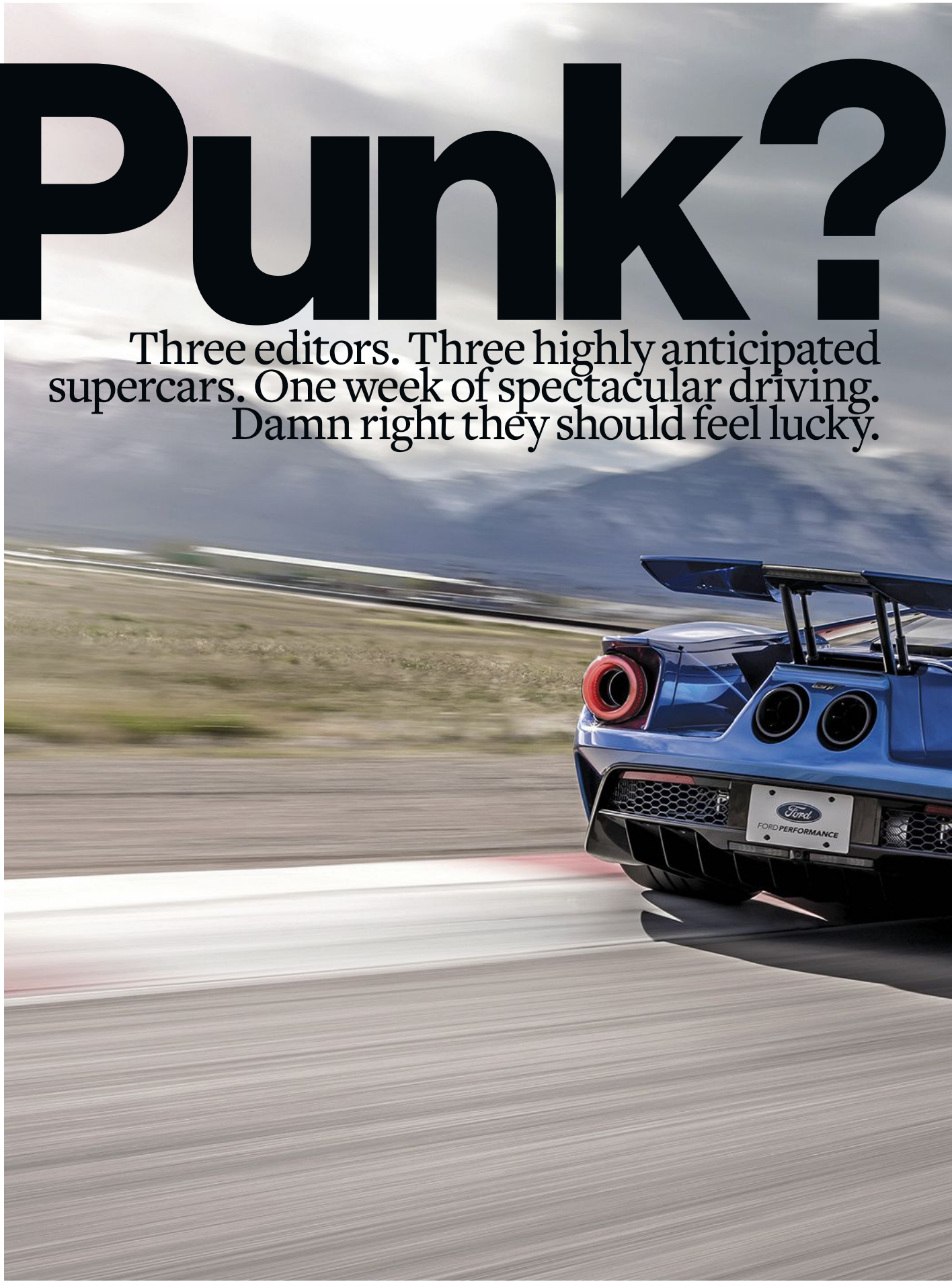
2018 McLaren 720S

Our European editor, **Mike Duff**, who typically looks less like an angry baby than he does above, spent two days piloting the newest McLaren on the roads of central Italy, thumbing his nose at Ferrari and Lamborghini on their own turf.

Y123 WCL

Punk?

Three editors. Three highly anticipated supercars. One week of spectacular driving. Damn right they should feel lucky.



2017 Ford GT

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Chilly northern Utah might lack the panache of Mediterranean Europe, but any location where we get to finally drive Ford's fabulous homologation special, the GT, is okay by us. And by "we," we mean our extraordinarily lucky executive editor, **Aaron Robinson**.

With Porsche's transcendent new 911 GT3, you won't need any damn luck.

_BY JOSH JACQUOT _PHOTOGRAPHY BY GREG PAJO

The true genius of Porsche's new GT3, the second coming of the model on the 991 platform, is that even a master will never fully exploit it. That's the trait that defines the GT3, not just among Porsches but among the world's best drivers' cars. As a result, it is endowed with a power to fascinate found almost nowhere else. No matter how hard it's pushed, there's still wizardry in its response, still delicacy in its feedback, still joy in its boundless ability. This is a machine whetted to a bayonet point on the mill of necessity. It is noise and feel and heat and speed wrapped in a physically absurd package, all in the pursuit of efficient corner circuitry.

The case it makes is this: When all of a driver's aggression is unloaded into its controls, it doesn't balk. It doesn't seek mechanical mercy. There is no pleading acknowledgment that, from its perspective, driving with purpose differs from driving for pleasure. What the GT3 does, when much is asked of it, is simply go faster. That is where its magic lies.

It goes faster, and then, like a defiant teenager or Sir William Wallace himself, it doubles down, betting that what it can endure exceeds what you can supply. And that is a profoundly fantastic thing to have a sports car do. So here, in Spain, on roads that feel purpose-built for its abilities, I'm easily the luckiest guy in this group. Make no mistake, this latest GT3, though not as exotic or as powerful as the supercars on the adjacent pages, is an awful lot of car.

A big part of the magic is the GT3's engine, which is a wicked ripping salute to all that is right with flat-sixes and natural aspiration. A new version of the 4.0-liter boxer from the now dead GT3 RS and 911 R replaces the old GT3's 9A1 3.8-liter mill. This 9000-rpm stomper is wholly updated and more alive than ever [see tech highlight]. At 500 horsepower and only 339 pound-feet of torque, it is, by supercar standards, a relative wimp. Until you actually throttle the thing yourself.

If there were ever a case for words between the numbers, this is it. There's more character lurking in this engine's last 1000 rpm than there is in the entire rev range of its many boosted counterparts. It's unapologetic about its racing heritage and doesn't brook driving mistakes without retribution. Neither does it ride a thunderhead of torque like a turbo engine. Miss an apex, slide wide, or drop a wheel and you're not getting that time back. There's no crutch here, no covering over of errors. If you're uncomfortable above 6000 rpm, then don't bother—this isn't your Porsche. Because this engine won't stop pulling until your cochleae ignite. This is an engine bred for Daytona and Sebring, and Le Mans. This thing makes you earn it.

Below: Yes, wing supports, the GT3's engine is now a 4.0-liter. It gulps air through two big black scoops. Bottom: A GT3 with a manual!

Not convinced that I've got all the luck here? Think about this: The GT3 is the only car in this trio with three pedals. Unlike the McLaren and Ford supercars, this GT3 can be had with a manual transmission. Porsche, in a move that reverses the performance-at-all-costs ethos introduced with the first automatic-only 991 GT3, threw us a bone in version 2.0. But, like the 911 R before it, the 991.2 GT3 gets only six cogs, which saves seven pounds relative to the seven-speed manual found in other 911s. It also gets a gear lever that's 0.8 inch shorter. Porsche offers the six-speed as a no-cost option. The seven-speed dual-clutch, which shares the manual's ratios in its first four gears, is standard. Both transaxles get a limited-slip differential—mechanical in the manual and electronically controlled in the PDK.

A taller rear wing and new underbody panels help increase downforce to 342 pounds at top speed (198 mph for the PDK, 199 for the manual). The GT3 shares its fat-haunched body with the current Carrera 4 and 4S, making it 1.7 inches wider at the

Tech Highlight: Flat Sex

Known internally as the 9A1.5, the new version of Porsche's motorsports-developed 4.0-liter flat-six might share its bore, stroke, and output with the engine it replaces, but it's largely new. There's a new crankshaft, valvetrain design, lubrication system, and intake manifold. Larger main- and rod-bearing journals yield a stiffer crankshaft, which reduces wear on the engine's front main bearing by distributing stress more evenly across all bearings. The downside is a crank with different resonance characteristics, which demands a heavier dual-mass flywheel to damp vibration. It makes no difference, as this engine is as explosive as ever when freely revved.

The new valvetrain requires no lash adjustment throughout the life of the engine. Eliminating the previous hydraulic lash adjusters saves weight while improving efficiency and response, as does the use of lower-rate valve springs. The engine's dry-sump system uses seven scavenge pumps and a new pressure pump for lubrication. A redesigned plastic intake manifold adds a second volume-adjusting flap to boost torque and response at low and midrange engine speeds. Most critically, it remains the same deeply entrancing 9000-rpm soul tickler we've come to love.

rear than the current Carrera. It's also about an inch lower. And get this: Carbon-fiber hinges for the rear decklid save two pounds. Who needs luck when you've got carbon hinges?

Michelin Pilot Sport Cup 2 rubber in 911 Carrera S sizes (245/35R-20 up front, 305/30R-20 out back) were fitted, though Dunlop Sport Maxx Race 2 tires are also homologated for the car. The steering is relatively light and supremely direct but lacks communication as understeer approaches. It speaks, but sometimes it only mumbles. The result is less confidence in front grip than is offered by, say, a Corvette Grand Sport. Again, there's nuance here. Change your driving and the GT3 changes its personality. Turn in later, or slower. Transition quicker to the brakes. Throw it in harder. You'll get a new result. You adjust, it adjusts. There are options in this Porsche. But no matter what you do, it won't surrender. As long as there's fuel in the tank and rubber on the road, the GT3 is faithful.

Only Porsche can produce a car offering such compliance coupled to carefully metered control. Go ahead, charge fully committed through undulations, ignore small road imperfections. You'll feel them, but they don't matter. There's more compression travel than the GT3's ride height will lead you to believe. And the only thing fatiguing about the optional carbon-ceramic brakes is their $9210 asking price. Speaking of which, this GT3 will start around $146,000, about 13 grand more than the previous GT3, when it hits dealerships this fall. And in case you're not feeling lucky enough to win Powerball this month, that makes this car about $140,000 less costly than the McLaren. And, in the steal of the century, you could buy three of them for the cost of the Ford.

In the end, the GT3's most stunning properties are its refusal to fade, its connection to the driver, and its understated purposefulness. Sure, it has a big wing. But this is a relatively unflashy supercar, a car most enthusiasts would gladly drive daily. That this flavor of 911 requires great care to get right is central to its allure. That trait makes it desirable because it demands that its driver be involved rather than just entertained. And that is better than luck.

2018 PORSCHE 911 GT3

VEHICLE TYPE: rear-engine, rear-wheel-drive, 2-passenger, 2-door coupe
BASE PRICE: $146,000 (*C/D* est)
ENGINE TYPE: DOHC 24-valve flat-6, aluminum block and heads, direct fuel injection
DISPLACEMENT: 244 cu in, 3996 cc
POWER: 500 hp @ 8250 rpm
TORQUE: 339 lb-ft @ 6000 rpm
TRANSMISSIONS: 6-speed manual, 7-speed dual-clutch automatic with manual shifting mode

DIMENSIONS
WHEELBASE: 96.7 in
LENGTH: 179.6 in
WIDTH: 72.9 in
HEIGHT: 50.0 in
PASSENGER VOLUME: 47 cu ft
CARGO VOLUME: 13 cu ft
CURB WEIGHT: 3150–3200 lb

PERFORMANCE (*C/D* EST)
ZERO TO 60 MPH: 3.0–3.4 sec
ZERO TO 100 MPH: 6.8–7.4 sec
1/4-MILE: 11.1–11.5 sec
TOP SPEED: 198–199 mph

FUEL ECONOMY
EPA COMBINED/CITY/HWY: 16–17/14–15/20 mpg (*C/D* est)

McLaren's new 720S is the unknown and unexpected supercar revelation.

_BY MIKE DUFF _PHOTOGRAPHY BY GREG PAJO

McLaren chose to launch the 720S in Rome, almost certainly as the result of a puerile yet entirely understandable impulse to tweak the tails of Italy's native supercar makers. But the location also emphasizes the biggest issue the British manufacturer still faces: Nearly a decade after it announced its first series-production road car, much of the world is unaware of its existence.

A point made when I stopped to take pictures of a fine-looking Lamborghini tractor that had been parked, at a typically rakish Italian angle, outside a small café on the test route. This example of well-bred Italian horseflesh had already drawn a small, appreciative crowd, one that was quick to turn its attention to the arrival of something even more exotic. Questions came in rapid-fire Italian: Is it a Lamborghini? A Ferrari? A Bugatti? One guy even seemed to be trying to persuade the *ragazzi* that they were looking at a new Corvette. The revelation that it was a McLaren produced blank looks and some clearly skeptical debate; had the Formula 1 team really started to make cars?

So, while we can certainly discuss the finer points of McLaren's product evolution, we should also be mindful that, for many people, the company's entire existence remains a well-kept secret. For them, ignorance precludes bliss: Over two days driving the 720S on Italian road and track, there was no better place to be.

Colin Chapman's famous adage was to simplify, then add lightness. Fellow Britain-based innovator Bruce McLaren took a different tack as his fledgling team came to dominate the early years of Can-Am: Add lightness, then add an overabundance of power.

Although Bruce has been dead for nearly 50 years, his philosophy still guides the company that bears his name. The outgoing 650S already held a substantial power-to-weight advantage over every major rival, but the 720S has more muscle and less flab. It gets a brawnier 4.0-liter version of McLaren's twin-turbo V-8, tuned to produce 710 horsepower (the 720 in the name refers to metric horsepower).

That's 49 horsepower more than the Ferrari 488GTB, a car that's rarely criticized as a slug. At the same time, McLaren has gone to the considerable extra expense of making the 720S lighter, swapping the 650S's aluminum windshield frame for a carbon-fiber structure that mates to a new roof spar made from the same material. This allows for the fitment of even cooler-looking top-hinged doors, but it has also increased structural stiffness while reducing mass. McLaren says the new body is 40 pounds lighter than the old one. That gives a power-to-weight ratio that makes both the Ford GT and the Porsche 911 GT3 look like couch potatoes.

Those new carbon pillars make a dramatic improvement to forward visibility, and new glazed panels on either side of the rear glass help to give the car's greenhouse the side profile of an F-16 canopy, offering similar visibility. The 720S has practically eliminated the over-the-shoulder blind-spot that mid-engined supercars have had since the Lambo Miura.

While the cabin feels more functional than spectacular, with most controls (including those for heating and ventilation) now built into the central and not very touch-sensitive screen, there is some supercar theater in the form of the power-tilting digital instrument display that folds away, replaced by a minimal version when the car is switched to track mode.

The exterior design is handsome rather than beautiful. It's sculpted and muscular thanks to the elimination of the 650S's side-mounted intakes. The air is now channeled to the engine and radiators through a well-hidden gap next to the greenhouse. The back is strongly reminiscent of the P1's, especially with the movable wing in its raised position. But at the front, large light apertures, which incorporate air intakes as well as lighting elements, make the 720S very color sensitive. Dark metallic shades

2018 McLAREN 720S

VEHICLE TYPE: mid-engine, rear-wheel-drive, 2-passenger, 2-door coupe
BASE PRICE: $288,845
ENGINE TYPE: twin-turbocharged and intercooled DOHC 32-valve V-8, aluminum block and heads, port fuel injection
DISPLACEMENT: 244 cu in, 3994 cc
POWER: 710 hp @ 7500 rpm
TORQUE: 568 lb-ft @ 5500 rpm
TRANSMISSION: 7-speed dual-clutch automatic with manual shifting mode
WHEELBASE: 105.1 in
LENGTH: 178.9 in
WIDTH: 76.0 in
HEIGHT: 47.1 in
PASSENGER VOLUME: 46 cu ft
CARGO VOLUME: 13 cu ft
CURB WEIGHT: 3150 lb
PERFORMANCE (C/D EST)
ZERO TO 60 MPH: 2.8 sec
ZERO TO 100 MPH: 5.5 sec
1/4-MILE: 10.4 sec
TOP SPEED: 212 mph
FUEL ECONOMY
EPA COMBINED/CITY/HWY: 18/15/22 mpg

look great, but lighter shades, particularly white, give it a dead-eyed look reminiscent of the fish counter.

McLaren has already proved itself capable of making a range of cars feel distinct despite sharing a nearly identical core architecture. But the 720S pulls off an even neater trick—that of a greatest-hits compilation, combining pretty much the best of the company's entire previous lineup. It's as civilized as a 570GT under gentle use, does a convincing impression of a 675LT on track, and is practically as fast as the seminal 903-hp P1 when fully unleashed. Engineers like to talk about bandwidth; the 720S has as much as one of those mountain-buried server farms.

At first it feels almost too civilized; supercars shouldn't be this easy to operate. Both the powertrain and handling dynamic-mode buttons (which have survived the culling of excess switchgear in the cockpit) have gained a comfort mode in place of what used to be called "normal." This delivers as promised, turning the 720S into something more pliant and refined than you would ever expect a car this low and mean-looking to be. It rides out the worst-quality Italian asphalt with utter disdain. Me in the GT3 here? No, thanks.

The engine delivers solid real-world urge without breaking a sweat or even raising its voice, fading to murmured nothings at cruising speeds. And the dual-clutch gearbox does a good impression of a slushy auto when left in drive. But the Mr. Hyde side of the 720S's split personality is never more than a flexed toe away. There's no doubting that the V-8 is force-fed, with a slight pause as it gathers momentum and boost, but once in the power it pulls like Jupiter's gravity, pretty much regardless of gear or speed. Unlike the GT3, you don't really have to work it. The engine is happy to zing all the way to the 8500-rpm limiter, indeed deliriously so, but the level of thrust and the volume of noise make it hard not to change up early. That and the very real risk of being arrested, of course.

This is a car that McLaren claims can get to 125 mph in less than eight seconds; the 720S can break the highest speed limit in America in under five seconds. But while it sounds better than its predecessors and makes some very angry noises when extended, it lacks the vocal range and operatic lungs of the Ferrari 488.

It is, in short, too fast to be experienced fully on the road. Which is why I was especially lucky that McLaren booked the Vallelunga circuit near Rome to allow for a fuller extension. The track confirmed that the 720S could compress straights and internal organs with equal aplomb, developing uncomfortable levels of grip under both lateral and longitudinal loadings. It can't match the hair-trigger thrills of the previous 675LT track special, feeling much more stable under braking and less skittish under power. And its steering communicates in hushed tones rather than drill-sergeant point-blank-range yelps. Yet the 720S is actually faster. Program boss Haydn Baker admits that his baby has the legs on its harder-cored predecessor, indeed that it's faster than the P1 around most circuits. That fact alone pretty much justifies the almost $290,000 price of admission.

Top: High-mounted tailpipes are always cool. Above right: No side scoops means the 720S looks more like an Italian loafer than most supercars do.

The 720S is an engineering tour de force, a towering achievement of McLaren-ness. It might not invoke the intense emotional connection that the equivalent Ferrari or Lamborghini does, but it will almost certainly dust the pair of 'em on a track. And isn't mutual respect a better basis for a long-term relationship than unfettered five-times-a-day lust? I mean, who can keep that up? If the company continues to build cars this good, it won't be long before every Italian café denizen recognizes its products on sight.

Compared with the Ford GT, it isn't even close: The McLaren is some $165,000 cheaper, plus lighter and more powerful. Sure, it hasn't scored a class win at Le Mans, but McLaren won't audit your social-media following before selling you one, either. The GT3 is a tougher comparison; journalists are preprogrammed to love 911s, and my first instinct would always be to bank the difference, but the 720S is in a different performance league.

If you've got 300 large but just one parking space, and you need a car that can cover almost every base, come here first.

Ford's fabulous GT takes its lucky, if cramped, pilot right back to Le Mans.

_BY AARON ROBINSON _PHOTOGRAPHY BY MARC URBANO

Last year, Ford Performance chief Dave Pericak found himself standing next to Edsel Ford II at the edge of a certain pastoral French racing circuit that has witnessed 84 years of glory, gore, grudges, and relentless grit. "You know," mused Ford, according to Pericak's recollection, "I was here 50 years ago with my father, when we won it. Now I'm here with my son."

When you work at FoMoCo, you work for a family. Pericak, who, with a small group of volunteers, took over a padlocked basement room in Dearborn, Michigan, and labored on his own time and after hours for months on "Project Phoenix" before it was even approved, tells me with a faraway look: "To bring that trophy back and hand it to that family, to return the most coveted prize in family history, that's what it was about."

Le Mans veterans will tell you that if you bring a new team, you should keep your expectations in check. And the GT's attempt last year to celebrate Ford's 1966 Le Mans victory with a class win started ominously. In sheeting rain, one of the four GTs, already saddled with last-minute weight and boost penalties, suffered a stuck gearbox right before the green flag. Wanting to be near the action, Pericak's boss, Ford executive VP and chief technical officer Raj Nair, leaped a rain-slicked pit wall, slipped, and broke his elbow. Amid the tension, nobody even noticed.

Almost a year later, we're standing beside another circuit, a 2.2-mile slice of the Utah Motorsports Campus west of windy Salt Lake City, next to the roadgoing version of the GT that will trickle into buyers' hands at the rate of 250 annually over the next four years. Finally, after the surprise January 2015 reveal at the Detroit auto show, after countless magazine covers and breathless coverage, a few lucky members of the fourth estate will at long last get to drive Project Phoenix.

I am in that group, about to pilot the first cousin to an honest-to-Ronnie-Bucknum Le Mans car! And unlike the GT3 and the McLaren, there will be no model updates for this car—at least, not anytime soon. The GT is pure Ford history and enthusiasm condensed against all odds and business sense into a drivable carbon-fiber Hot Wheels toy that will forever remain rare enough to drop jaws wherever it goes. And I get to drive it. On a circuit.

Nobody is luckier than me, I think, as I stride up to the GT, doors levitated to a spread eagle, and thrust my right leg in, twist sideways, and . . . ah, no, that didn't quite work. Let's try sitting down on the wide sill, swinging a leg in, and—ow!—just bashed my head on the FIA-spec roll cage hidden behind the low-hanging headliner. Okay, stand up again, right leg in, twist while bending the left knee a bit, and—*pop*!—I feel a tendon go. There's a white-hot flash of shooting pain in my knee, and as my left leg collapses like the bridge on the River Kwai, I tumble backward into the GT and, voilà! I'm in!

Because the GT's narrow, vertical buckets don't move (the pedals and steering column do, with wide latitude for different body types), most of the car's buttons cluster on the rectangular wheel so you don't have to reach to the architecturally sculpted dash of carbon-fiber bridges and buttresses. This car is not at all retro like its 2005–06 predecessor with its comparatively giant cabin; all data comes via digital screens, the one in front of the driver flashing the speed, revs, and plebeian messages such as "Driver Door Ajar." A big anodized button in the slim center console lights the twin-turbo 3.5-liter V-6, and the nearby rotary shifter seems a little out of place, like something from a Fusion or a Lincoln Continental.

The GT's seats don't move. So to make sure drivers can manage the car's functions, nearly all the controls are put on the adjustable steering wheel.

A CGI image of the car appears in the dash screen when you change driving modes. Put the GT into track mode via the thumbwheel on the steering wheel, hit the "OK" button to confirm, and the car suddenly falls a couple of inches with a startling lurch, as if the pit crew has dropped you off the jacks. Take it out of track mode and it jumps up again with equal haste. This thing means business.

Back at Le Mans last year, luck continued not to favor Ford as it diced with Ferrari for the LM GTE Pro class lead. Loose wires caused the lead GT's mandatory position lights to wink out, and Sébastien Bourdais, one of the team's most seasoned vets, had to find his way through the darkness with a fritzing electrical system. In the wee hours, Nair, determined to stand with his colleagues for the entire race, approached Pericak. "I can't hold a cup of coffee," he said.

Billy Johnson, just 29 when he drove the No. 66 car that finished fourth in class last year, slides in next to me. For a vehicle that is more than 15 feet long, putting two people into the GT is like stuffing a couple bedspreads into a Maytag. As in a Lotus Elise, the seats are squeezed together, inboard of the Ford's carbon-fiber tub's thick structural side boxes. You will want to shower beforehand and wear only the mildest cologne, as you and your passenger are about to enjoy an intimacy Tinder users only dream about.

The affable Johnson waves me forward and we burble menacingly onto the track. A big V-6, especially one all stuffed up with turbos, doesn't always sound fabulous, but this 647-hp unit does. It makes a proper wail, the rising, ragged tones of its exhaust sealing the car's racing connection. You can hear the turbos whoosh a bit, but you can't hear any of that crass *pish, pish, pish*, which would make it sound like just a jumped-up Mitsubishi Evo.

As I warm the big Michelins and learn the track, the GT feels light and ready to play. Co-developed simultaneously alongside the competition car over a couple of short, intense years, the roadgoing GT, made up of approximately 250 carbon-fiber pieces, is not an all-or-nothing racing skull. It's happy to motor at moderate speed with a gently progressive throttle and brakes that are easy to modulate.

2017 FORD GT

VEHICLE TYPE: mid-engine, rear-wheel-drive, 2-passenger, 2-door coupe
BASE PRICE: $453,750
ENGINE TYPE: twin-turbocharged and intercooled DOHC 24-valve V-6, aluminum block and heads, port and direct fuel injection
DISPLACEMENT: 213 cu in, 3497 cc
POWER: 647 hp @ 6250 rpm
TORQUE: 550 lb-ft @ 5900 rpm
TRANSMISSION: 7-speed dual-clutch automatic with manual shifting mode
DIMENSIONS
WHEELBASE: 106.7 in
LENGTH: 187.5 in
WIDTH: 78.9 in
HEIGHT: 43.7 in
PASSENGER VOLUME: 43 cu ft
CARGO VOLUME: 0.4 cu ft
CURB WEIGHT: 3250 lb
PERFORMANCE (C/D EST)
ZERO TO 60 MPH: 2.9 sec
ZERO TO 100 MPH: 5.7 sec
1/4-MILE: 10.6 sec
TOP SPEED: 216 mph
FUEL ECONOMY
EPA COMBINED/CITY/HWY: 14/11/18 mpg

Considering how quickly the car was engineered and that its primary purpose was a class victory at Le Mans, it feels surprisingly refined and cohesive. The seven-speed dual-clutch automatic shifts quickly, and I can't even detect any serious turbo lag, though the engine does get a little more urgent above 3000 rpm as it beelines for the 7000-rev redline.

We start picking up the pace, Johnson reminding me of the track layout on the intensely flat, sometimes confounding course. Third and fourth gears are fine here; you can press deeper into the throttle and flood the turbines with exhaust gas without lighting up the tires. The grip is obviously tremendous, and the ride not quite the body slam I was expecting. The GT swallows curbs and camber changes with sang-froid, the roll and body motions minimized but not choppy.

The morning sun well up at Le Mans, the Grand Marnier crepe booth was doing a brisk business and the big Ferris wheel was running at its roughly 0.5-rpm redline (with stops) when the No. 68 Ford GT passed the Risi Competizione Ferrari 488 for the lead. The stands erupted.

Pushing myself now, I detect a bit of understeer in the tighter corners, and I'm also able to provoke the GT sideways on the exit just a little too easily. Is it loose? Johnson, next to me, starts coaching. You don't drive the GT as you do lesser-powered cars

“The driver feels plugged into the Ford through the quick steering and the wide pedals, and placement of the nose is easy as it flows contentedly from bend to hairpin to sweeper.”

such as—at the risk of hilarious overstatement—my old Spec Miata racer, which likes to corner under acceleration that settles and stabilizes the car. The GT has so much power and such a relatively light curb weight of about 3250 pounds, ideally distributed, that it easily overdrives its front tires. In clumsy hands it behaves clumsily.

Johnson advises me to do my hard braking in the traditional straight line, then trail-brake or coast as needed all the way to the apex. The GT, thus decelerating, now wants nothing more than to rotate around its axis like a gate swinging on a post. You can also feel this effect if you lift suddenly in an overcooked corner. Even in a scrubbing understeer flail, the GT’s helm will snap-to and answer. On the exits, you have to be patient; mat the throttle too soon and the 325/30R-20 rear tires will break loose as the boost builds. To be fast you must learn to be smooth with this car, just like the pros. If you’re not, it’ll still play along, the breakaway terrifically gentle and the various stability-control modes letting you get more and more sideways without risking any damage.

At Le Mans, with the No. 68 Ford GT leading its class, the prize almost at hand, Nair and a superstitious Pericak had been doing their best to “keep the jubilation under control,” Pericak recalls. Then the lead LMP1 Toyota quit in front of the pits with one lap to go. “After that you could hear a pin drop in our garage.”

The Utah highways beckon, and the GT loves an undulating road as much as a track. The driver feels plugged into the Ford through the quick steering and the wide pedals, and placement of the nose is easy as it flows contentedly from bend to hairpin to sweeper. Ferrari drivers, spoiled by perfect steering, will not complain.

The GT's radically tapered fuselage is an aerodynamic and aesthetic win. But it means that a Miata has a roomier interior and 12.5 times more cargo space.

Without helmets to muffle the noise, however, the GT’s cabin is downright loud, the exhaust in certain gears at certain throttle positions turning painfully boomy. The seats with their weirdly tufted cloth inserts barely recline, and the passenger well has a big footrest across it that is just a bit too close to the seat for a comfortable leg stretch. The “trunk” is a joke, filled to capacity by two rolled-up windbreakers. The new GT is gorgeous garage candy for a lucky few, but unlike the last GT, it won’t be much fun on a long club rally.

Landing in Detroit after the race and the all-night parties, Pericak had to help Nair pull his suitcase down from the overhead bin. Nair just looked at him and asked: “Did we just win Le Mans?” For Pericak, the victory effort and the spectacular if somewhat uncomfortable road car that it produced are “bittersweet—there were a lot of casualties,” from Nair’s arm, which eventually went into a cast, to the families who didn’t see their moms and dads much for two years.

This is a car built on sentimentality. Sure, there were other reasons for the GT, such as creating a technology test bed and taking Ford’s brand onto the international racing circuit to be enhanced by its reflected glitz. But ultimately, a family with serious resources just thought a class win at Le Mans on the 50th anniversary of Ferrari’s famous drubbing would be cool. And with a lot of sweat, a few tears, and a dash of luck, their people made it possible. All of that is embedded in this car. The experience is singular.

Do you hate your detector?

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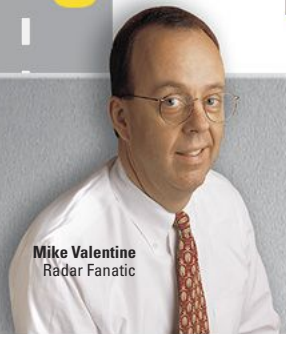

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THE FIX IS IN

THREE YEARS AFTER ITS EMISSIONS SLEIGHT OF HAND WAS EXPOSED, VOLKSWAGEN HAS A SOFTWARE UPDATE TO PUT ITS DIESELS BACK ON THE ROAD. WE TEST THE RESULT TO FIND OUT IF REPAIRS TO ITS CARS WILL BE A STEP TOWARD REPAIRING THE BRAND'S REPUTATION.

BY JEFF SABATINI

ILLUSTRATION BY ANDY POTTS

> Throwing money at problems is how corporations make them go away. Pay for more lawyers, pay for more public relations, and certainly pay for more marketing in the hopes that the world will believe your new promises. For Volkswagen, those invoices have recently been supersized, befitting the scope of the diesel cheating scandal that has engulfed the company and prompted the recall of approximately 590,000 vehicles in the United States.

Yet, its attorney bills and the costs of hiring extra PR staff must seem like little more than a few padded expense reports to the accountants in Wolfsburg. Since a group of West Virginia University scientists announced in May 2014 that they had found unexpectedly high emissions from VW's TDI vehicles—which led to the uncovering of the company's conspiracy to cheat government regulators and defraud consumers—Volkswagen has committed to spend at least $25 billion in the U.S. in legal settlements alone.

As the world's largest car company bleeds, TDI money now begets its own economy [see "TDI Profiteering"]. VW even has had to create a subsidiary called Electrify America to ensure the spending of $2 billion on brand-neutral electric-vehicle infrastructure. Not coincidentally, Volkswagen says that it has quit the "clean diesel" business for good, at least in the U.S., to focus its green efforts on EVs. Except that as of April, the company owns more than 237,000 used diesels acquired through its court-mandated buyback program. And inventories are growing, with 15,000 more vehicles being turned in each week, according to reports. Without the joint blessing of the California Air Resources Board (CARB) and the United States Environmental Protection Agency, these cars are to remain parked in places like the lots that surround the shuttered Pontiac Silverdome, the former Detroit Lions football stadium 30 miles north of Detroit.

That's where Volkswagen found our test vehicle, a 2015 Passat sold new in Texas and now showing 25,000 miles on its odometer. One of the so-called Gen 3 diesels that clean

Heavy Metal Parking Lot: Rows of Volkswagen diesels parked at the abandoned Silverdome led the city of Pontiac to sue the owners of the property.

up waste gases with catalytic converters, particulate filters, and diesel exhaust fluid (DEF), it is among the first batch eligible for a fix—in this case, a software update to both its engine and transmission computers. This is per the emissions-modification proposal that CARB and the EPA approved on January 6, which also covers 2015 Beetles, Golfs, Jettas, and Audi A3s with 2.0-liter TDI engines, some 67,000 total vehicles.

A second phase of the third-gen recall will involve dealers fitting replacements for the entire emissions system, including a new diesel-particulate filter, diesel-oxidation catalyst, and selective catalytic-reduction converter. A second NO_x sensor downstream of the catalyst also will be added, allowing the emissions system to operate in an improved, closed-loop mode thanks to another forthcoming software update. These new parts should ensure that the system functions correctly for at least 150,000 miles, and it will be monitored by the EPA and CARB through further testing over the next five years, an extension of the one year VW would normally be required to conduct an In-Use Verification Program of spot-checks of randomly selected customer vehicles.

Owners will benefit from a transferable emissions warranty that is extended to the greater of either 11 years or 162,000 miles from new, or five years or 60,000 miles from the date of the recall service. Volkswagen needs some manufacturing lead time, so the second phase of the recall won't start until early 2018. But in late March, Volkswagen got the go-ahead for its dealers to resume selling 2015 TDIs equipped with the new software, including some brand-new leftovers. Shortly thereafter, we conducted our testing—with VW's blessing—seeking to determine whether the fix carried any downsides or performance penalties that might be felt by owners of repaired cars.

> STOPWATCH SAYS

Since Volkswagen is legally prohibited from allowing any of these TDI buybacks back on the road until their software has been reflashed, our Passat was delivered with the new software. Subjective driving detected no anomalies in its operation—not that we anticipated finding any. VW is telling owners to expect few to no driving differences outside of improved accelerator response and slightly different shifting behavior on automatic vehicles. Neither fuel economy nor performance should be affected. However, owners are warned of the possibility of up to 14 percent higher consumption of DEF, depending on driving style.

That's the most appreciable change brought about by the software, which will also have been stripped of the defeat device code that triggered different emissions calibrations for dyno emissions testing and on-road driving. "For the most part, it's the dosing strategy for DEF" that allows cars with the new software to reduce emissions, says VW senior manager of regulatory affairs, Rob Sutschek. No changes were made to other engine operating parameters, he says, specifically naming boost pressure, exhaust-gas recirculation scheduling, fuel-rail pressure, and injection timing. Which would indicate that at least for the third-generation diesels, the main benefit VW gained by cheating was merely stretching the DEF refill interval to coincide with a 10,000-mile oil change.

It's worth noting that the fixed gen-three cars will not, in fact, be certified to the same emissions standards (federal Tier 2 Bin 5

TDI PROFITEERING

HOW SOME SAVVY WHEELER-DEALERS CASHED IN ON DIESELGATE.

As get-rich schemes go, this one was fairly foolproof. All it took was a close reading of the Volkswagen settlement and some capital for a few astute individuals—and, rumor has it, a handful of non-VW dealerships—to cash in on the TDI buyback program, creating a homegrown VW diesel trade that fattened a few pockets. Several months ago, you too could have picked up a used diesel-powered VW for well below book value, then sat on it for a bit before turning it in to VW for the buyback money. Sometimes the payoff would be only a few thousand dollars, but one buyer who got the system wired, and who talked to us only on the condition of anonymity, claims to have made around $20,000 on some vehicles.

The $10 billion buyback and restitution program kicked off in November 2016, part of Volkswagen's larger $15 billion TDI settlement that also includes fines and environmental remediation. The buyback is meant to put cash in the pockets of aggrieved VW customers. However, it also requires those owners to read and comprehend a fairly arcane system that calculates how much VW will pay for the car plus a second compensation payment, both varying based on model, year, and mileage. This has translated into opportunities for those paying attention, as the amounts work out to well above what these cars would fetch on the open market under normal circumstances.

Our anonymous source, whom we found through a Reddit thread, says he bought scandal-affected VWs and Audis from all over the country, mostly from dealers and auctions, collecting 27 vehicles. "I was the original owner of a 2011 2.0, and that's what turned me on to it," he says. "In June of last year, I started reading about the buyback and it looked like a good opportunity, so I borrowed whatever money I could get my hands on and started buying the cars.

"I have more than $400,000 invested, and the profits are variable, but my overall profit margin is going to be between 45 and 50 percent," he says.

As shady as this might sound, it's legal according to the Federal Trade Commission. Unless, of course, the buyer lies to the seller about the details of the buyback program to get a lower price. That's fraud. Our source says he checked with his state's department of motor vehicles to make sure he is aboveboard with state regulations. Because he's treating diesel trading like any other investment, a CPA ensures his tax compliance.

Before you cash in your 401(k) to become a TDI flipper, understand that if you're just learning about this now, you're too late. Although it's still possible to buy a TDI and submit a buyback claim before the September 1, 2018, cutoff, the cheap cars are gone, and the money-making days are well over. *—Benjamin Preston*

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and California LEVIII ULEV125) that they were originally supposed to meet. Rather, the court has created a new standard that resembles the current federal Tier 3 Bin 160, which is less stringent for lower-speed operation but allows fewer NO_x emissions at highway speeds. Regardless of which emissions standard the fixed cars now adhere to, the broader environmental concern was the potential impact of junking so many vehicles. As Sutschek says, "The EPA wants these vehicles in service."

At the proving grounds, we ran a modified version of our typical acceleration test, first with the new software and then again after the car had been reverted back to its "dirty" code by two Volkswagen technicians. (Although they used a laptop plugged into the OBD II port, they stressed that VW dealers and others authorized to upload the new software would use a system that will not allow a car to be reverted to any earlier code.) In both zero-to-60 and quarter-mile tests, we recorded identical results: 9.3 seconds and 17.2 seconds at 82 miles per hour. Extra test equipment in the back seat and a passenger aboard mean these numbers cannot be compared with other *C/D* test numbers, nor should they be considered absolute. But the comparative fact stands: We found no notable performance differences between the car with its original dirty software and the same car after the fix.

The filler neck for the Passat's DEF tank is located in the trunk, with the tank extending out of sight such that we were unable to accurately assess DEF consumption during testing. Nor were we able to do much fuel-economy analysis, although according to the Passat's onboard trip computer there was no significant change during steady-speed cruising after we switched software.

We did employ a portable emissions-measurement system [see "Sniffing Around"] during testing. The data we collected with this device do not directly correspond to any measurements made during federal emissions testing, both because of the nature of the testing equipment and because our flat-out acceleration runs have no analogue in the federal procedure. We saw small amounts of NO_x emissions present during steady-speed cruising at 90 mph reduced to zero with the clean software, which seems significant in that it indicates cleaner operation even beyond the speeds at which federal emissions testing is conducted. And of course, the tailpipe sniffer did in fact prove that the same car produced different patterns of NO_x emissions depending on the software. Within the limited scope of our testing abilities, we considered this sufficient proof that Volkswagen was not perpetrating any further deception.

CAR AND DRIVER TEST RESULTS

	DIRTY	CLEAN
ACCELERATION 0–60 MPH	9.3 sec	9.3 sec
1/4 MILE @ MPH	17.2 sec @ 82	17.2 sec @ 82
30–50 MPH, TOP GEAR	5.0 sec	5.0 sec
50–70 MPH, TOP GEAR	6.7 sec	6.6 sec
30–90 MPH, 4TH GEAR	22.3 sec	22.8 sec
0–100 MPH, STANDING START	27.1 sec	27.7 sec

> MORE TO COME

Volkswagen has also submitted two other proposals covering the rest of the recalled four-cylinder diesels, for which it says it should receive final approval shortly after our publication date. While company officials would not comment on specifics, some details of the modifications to these cars can be found in the consent decree under which Volkswagen is currently operating.

Engine design for the generation-two TDIs, or 2012–2014 Passats, differs from the third generation's but still uses DEF to curb emissions, so the fix for those vehicles will likely follow the same path as the 2015 models, relying on greater DEF dosing to lower NO_x emissions. All the diesels should eventually get completely new emissions hardware. In fact, this is required by the consent decree for the first-generation TDIs, or 2009–2014 Jettas, 2010–2014 Golfs, 2013–2014 Beetles, and 2010–2013 Audi A3s. These earlier models do not use DEF, however, which makes the fix more challenging. These cars employ a NO_x trap that requires periodic purging; this is accomplished by running a rich fuel mixture, which will likely result in reduced fuel economy.

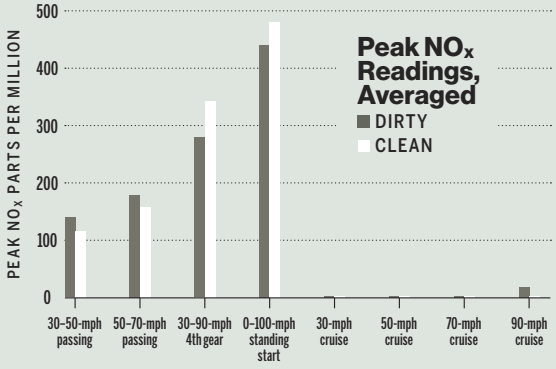
Had Volkswagen been willing to make that trade-off years ago, it might have sold fewer cars, but the consequences of this crisis would surely have been averted. Since the emissions scandal was uncovered, VW's annual sales in the U.S. have dropped by 21 percent—or nearly 85,000 fewer vehicles in 2016 than in 2013—at a time when the rest of the industry was up 12 percent. This year, however, its sales are showing signs of rebound, with first-quarter numbers up 10 percent. We can only imagine that this first fix, which puts thousands of Volkswagen diesels back into service, will help bolster those numbers. Money can make problems disappear, but it is no substitute for fixing them.

INSET IMAGES BY AUSTIN IRWIN

SNIFFING AROUND

To reduce the chances of another TDI fiasco, carmakers and government regulators alike have expanded their tailpipe-emissions measurement capabilities, moving out of the lab and onto the road. Gathering real-world insights regarding how cars behave in customer hands has necessitated a new category of tools called portable emissions-measurement systems (PEMS). Some of this gear is cumbersome and expensive, while other units—including the analyzer we borrowed from Infrared Industries for this test—are more wieldy.

The company's FGA4000XDS PEMS is a nine-pound box containing non-dispersive infrared and electrochemical-cell sensors capable of quantifying concentrations of hydrocarbons, carbon monoxide, carbon dioxide, nitrous oxide, and oxygen in the exhaust stream. It can also display air-fuel ratio and engine rpm when connected to the engine's ignition system. It is factory calibrated and certified to comply with international standards. After a five-minute warm-up and the insertion of a sample line into the tailpipe, this device is able to quantify the ingredients in practically any exhaust stream. *—Don Sherman*



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RAISING

Chasing a Tenacious Conquistador with a Stoic German.

_by Josh Jacquot

photography by Jim Fets

ARIZONA

2018 Audi S5 vs. the Coronado Trail Scenic Byway

HISTORY TELLS US THAT ZUNIS HAVE GOOD AIM.

On July 7, 1540, at a large pueblo near what is now the Arizona and New Mexico border, Spanish conquistador Francisco Vázquez de Coronado took a well-placed rock to the head. The blow, delivered by a Zuni tribesman, removed him from the first military encounter between Europeans and first peoples in the future United States. Coronado regained his wits to discover that his men, lacking their concussed leader, had gone on to conquer the city of Hawikuh. Though Coronado's stated purpose was to turn the locals' loyalty to the pope and the Spanish throne, what he really wanted, the thing that had driven him there from deep in modern-day Mexico and before that from across the Atlantic, was gold.

Our purposes in Arizona are different. We're here to retrace the steps that led Coronado to Hawikuh, to take the measure of the terrain, and to experience one of America's most glorious driving roads. U.S. Route 191 between Morenci and Springerville, Arizona, is a 123-mile streamer of winding asphalt stretching south to north in eastern Arizona. Known now as the Coronado Trail Scenic Byway, it roughly follows the route Coronado took on his journey through the New World. Hopefully, for our sake, with less peril.

Coronado was Spanish, but we're here with a German—Audi's 2018 S5. And though the conquistador's expedition included as many as 1500 horses, the S5 offers a modest 354. But its 3.0-liter V-6 shovels out 369 pound-feet of torque as low as 1370 rpm thanks to a single twin-scroll turbo mounted between its cylinder banks. It's a drivable, if benign, lump. This is, however, the first S5 without a manual transmission, so we rely on ZF's competent but ubiquitous eight-speed autobox to do the rowing.

Other than a few hundred feet of guardrails near Alpine, a small village along the road's flattest, fastest, and least consequential sections, the Coronado Trail lacks protection for the feebleminded. Heavily exposed, the road traverses more than 5000 vertical feet of relief between its highest and lowest points, rising, falling, and rising again over its entire length. Like the Spaniard's original path, it suffers no fools. Get it wrong in the middle of the Coronado, and help is hours away.

Carving north out of Morenci, the first 10.5 miles of highway bisect the Morenci mine, a massive open-pit operation and the largest copper extractor in North America. Depending on your view, the mine's red-terraced cliffs stand as either a testament to man's governance over nature or as a staggering case of human overreach. Either way, those first few miles set the tone for what's to come in only one respect: Despite the isolation, man leaves his mark. From Morenci northward, the Coronado Trail penetrates the vast, untamed reaches of the American West with the same resolve as did the man himself.

Coronado's primary motivation was rooted in Spain's view of the New World as a 16th-century ATM. Other conquistadors, like Francisco Pizarro, who in 1533 pillaged the wealth of the Incas in Peru, served as dubious role models. Coronado's prospects had been fueled as recently as 1536 by embellished reports from shipwrecked explorer Álvar Núñez Cabeza de Vaca. Many tales of the largely unexplored north told of riches in the Seven Cities of Cibola where the palaces were encrusted with emeralds and where the rulers ate from golden plates. It was the promised wealth of those legendary cities coupled

Right: Six-piston front calipers never tire of the Coronado's descents. Far right: Audi's new single-turbo V-6 is good for 354 horsepower.

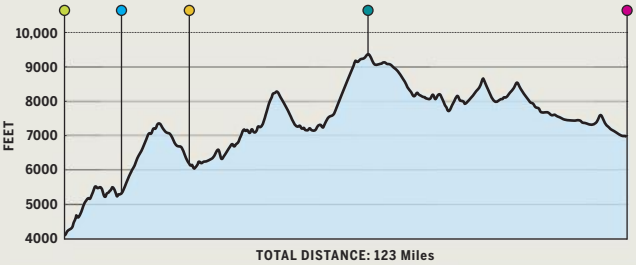
with the power that would come with their successful plunder that drove Coronado into the unknown.

Once north of the mine, the road bearing Coronado's name winds into an 11-mile labyrinth of climbing corners. If the state of Arizona is to be believed, most of these are 10-mph bends, and in many of them that pace is nonnegotiable. The road isn't perfect. We configure Audi's Drive Select to its individual setting and dial the suspension to comfort, the extra compliance necessary to maintain composure on a surface beset with freeze-thaw imperfections.

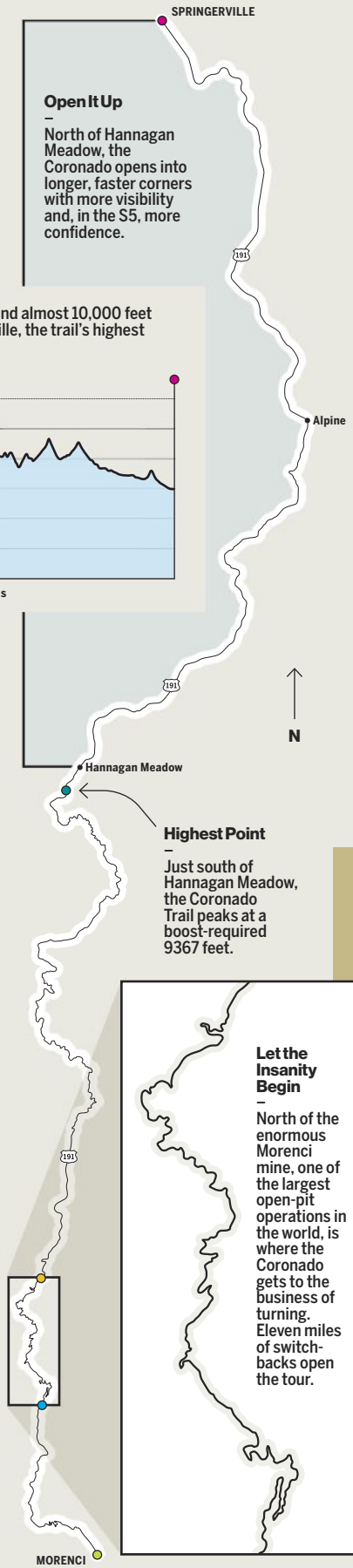
Audi's decision to forgo a manual transmission is regrettable on the Coronado. The manual's death was driven by a lack of demand, we're told, and the fact that the automatic makes the car quicker. Still, the loss of such a valuable control interface is palpable in a place where shift speed is irrelevant. There's merit, however, in always having our hands on the wheel, inches from the shift paddles. We measured grip at 0.94 g on the test track, but on the road, the S5's lust for cornering fades in direct proportion to its front tires' purchase on the tarmac. Even in Coronado's slowest throws, the S5 refuses to rotate meaningfully on or off the throttle. Its electronically controlled torque-vectoring rear differential, part of the S Sport package, is retuned to be more responsive and precise but is less palpable than in the previous S4 and S5.

The Coronado Trail

Virtually unburdened by guardrails and wildly exposed, U.S. Route 191 between Morenci and Springerville, Arizona, is as unrelenting as it is remote. Roughly retracing the route Spanish conquistador Francisco Vázquez de Coronado cut in 1540 as he forged north through the New World, the trail looks much the same today as it did then.



Elevation Change
–
With a cumulative vertical rise of nearly 13,000 feet and almost 10,000 feet of bending descents between Morenci and Springerville, the trail's highest and lowest points lie almost 5300 vertical feet apart.



Open It Up
–
North of Hannagan Meadow, the Coronado opens into longer, faster corners with more visibility and, in the S5, more confidence.

Highest Point
–
Just south of Hannagan Meadow, the Coronado Trail peaks at a boost-required 9367 feet.

Let the Insanity Begin
–
North of the enormous Morenci mine, one of the largest open-pit operations in the world, is where the Coronado gets to the business of turning. Eleven miles of switchbacks open the tour.

A purely mechanical torque-sensing unit performs center-differential duties for the all-wheel-drive system.

Eventually, we cross Four Bar Mesa, a 2.8-mile-long, 6578-foot-high plain and the only remotely straight section on all the Coronado. It highlights the S5's straight-line ability. The run to 60 mph consumes 4.3 seconds, beating the last S5 by 0.2 second. The quarter-mile follows in 12.9 seconds at 107 mph.

The coupe kisses 140 mph before the road ramps toward vertical again, pressing into the switchbacks and overhangs of the Mogollon Rim. This massive escarpment of Precambrian rock forms the southern edge of the Colorado Plateau—a high desert drained mostly by the Colorado River. Coronado would, sometime after his hollow victory at Hawikuh, dispatch a unit of 12 men to push west from there in a search for anything of value. These men, led by García López de Cárdenas, were the first Europeans to lay eyes on the monument to geologic time that we know as the Grand Canyon.

Among the S5's many effective subtleties are its brakes, which operate invisibly and without complaint regardless of how hard we push. Six-piston fixed calipers up front and single-piston sliders out back yield a 70-to-zero stopping distance of 150 feet, among the best in its segment. Possibly a more important subtlety is the S5's variable-ratio dynamic steering, which quickens the more it's spun off-center without feeling artificially enhanced. Like many Audis, its helm is accurate, predictable, and quick enough but refuses to transmit meaningful feedback.

[+] Eminently easy, didn't gain weight, quicker than before.
[–] Too modest, another manual transmission bites the dust.
[=] The capable, predictable, and calm German coupe that's still plenty rapid.

It's likely that even before the bloodshed at Hawikuh, which yielded corn and beans but no gold, Coronado suspected that the legend of the Seven Cities' riches was exactly that. Hubris and a desire to save himself the shame of an empty-handed return drove him farther north. However, more-practical matters demand our commitment. In the 90 miles between Morenci and Alpine, not a single paved road inter-

2018 AUDI S5 PRESTIGE

PRICE
AS TESTED **$68,550**
BASE **$59,975**

VEHICLE TYPE: front-engine, all-wheel-drive, 4-passenger, 2-door coupe
OPTIONS: S Sport package, $2500; Driver Assistance package, $1800; nappa leather seating, $1250; Dynamic Steering, $1150; 19-inch wheels with summer tires, $800; Navarra Blue metallic paint, $575; Carbon Atlas inlays, $500
AUDIO SYSTEM: satellite radio; CD player; minijack, USB, 2 media-card, and Bluetooth-audio inputs; Android Auto and Apple CarPlay interfaces; 19 speakers

ENGINE

turbocharged and intercooled Miller-cycle V-6, aluminum block and heads
BORE X STROKE ..... 3.33 x 3.50 in, 84.5 x 89.0 mm
DISPLACEMENT ..... 183 cu in, 2995 cc
COMPRESSION RATIO 11.2:1
FUEL DELIVERY SYSTEM: direct injection
TURBOCHARGER: BorgWarner
MAXIMUM BOOST PRESSURE: 21.5 psi
VALVE GEAR: double overhead cams, 4 valves per cylinder, variable intake- and exhaust-valve timing and intake-valve lift
REDLINE/FUEL CUTOFF ..... 6700/6500 rpm
POWER ..... **354 hp @ 6400 rpm**
TORQUE ..... **369 lb-ft @ 1370 rpm**

DRIVETRAIN

TRANSMISSION: 8-speed automatic with manual shifting mode
FINAL-DRIVE RATIO: 2.85:1
ALL-WHEEL-DRIVE SYSTEM: full time with a helical center differential and electronically controlled torque-vectoring rear differential

GEAR	RATIO	MPH PER 1000 RPM	MAX SPEED IN GEAR (rpm)
❶	4.71	5.8	38 mph (6500)
❷	3.14	8.6	56 mph (6500)
❸	2.11	12.9	84 mph (6500)
❹	1.67	16.3	106 mph (6500)
❺	1.29	21.2	138 mph (6500)
❻	1.00	27.2	155 mph (5700)
❼	0.84	32.6	155 mph (4750)
❽	0.67	40.8	155 mph (3800)

CHASSIS

unit construction with a rubber-isolated rear subframe
BODY MATERIAL: steel and aluminum stampings

STEERING

variable-ratio rack-and-pinion with electric power assist
TURNS LOCK-TO-LOCK 2.3
TURNING CIRCLE CURB-TO-CURB ..... 37.7 ft

SUSPENSION

F: ind, 2 lateral links and 2 diagonal links per side, coil springs, 2-position electronically controlled dampers, anti-roll bar
R: ind; 2 diagonal links, 2 lateral links, and a toe-control link per side; coil springs; 2-position electronically controlled dampers, anti-roll bar

BRAKES

F: 13.8 x 1.3-in vented disc, 6-piston fixed calipers
R: 13.0 x 0.9-in vented disc, 1-piston sliding calipers
STABILITY CONTROL: fully defeatable, competition mode launch control

WHEELS AND TIRES

WHEEL SIZE ..... 8.5 x 19 in
WHEEL CONSTRUCTION ..... cast aluminum
TIRES: Hankook Ventus S1 Evo2, 255/35R-19 96Y

EXTERIOR DIMENSIONS

WHEELBASE ..... 108.8 in
LENGTH ..... 184.7 in
WIDTH ..... 72.7 in
HEIGHT ..... 53.9 in
FRONT TRACK ..... 62.5 in
REAR TRACK ..... 61.7 in
GROUND CLEARANCE ..... 3.7 in

INTERIOR DIMENSIONS

SAE VOLUME ..... **F:** 52 cu ft **R:** 35 cu ft
TRUNK ..... 12 cu ft

CAR AND DRIVER TEST RESULTS

ACCELERATION

ZERO TO	SECONDS
30 MPH	1.6
40 MPH	2.3
50 MPH	3.3
60 MPH	**4.3**
70 MPH	5.6
80 MPH	7.1
90 MPH	8.8
100 MPH	**10.9**
110 MPH	13.7
120 MPH	16.7
130 MPH	20.3
140 MPH	25.4

tested by TONY QUIROGA *in California City, CA*

sects the Coronado Trail. The only way through these mountains by car, then, is this route.

Just south of Hannagan Meadow, at about 9400 feet, the trail reaches its zenith, revealing its full breadth. Here the terrain opens, the road mellows, and the speed climbs again. This, at last, is the proper dominion of the S5. At 3942 pounds, it weighs virtually the same as the previous-generation S5, and in the triple-digit sweepers it is a stable, connected partner. It's also an adult's car, lacking both the presence and the promise of Audi's RS models. There's no flourish in its downshifts, no nervousness in its throttle. And its exhaust note, though not without character, doesn't lift the head of a single Arizona elk, even at full wail.

Starting at $55,575, the S5 is hardly a cheap way to cross the Arizona mountains, but that doesn't keep it from being one of the quickest. All new S4s and S5s start at the Premium Plus trim level. Our Prestige-trim tester adds, for $4400, the interior tech that's beginning to define the brand—namely its Virtual Cockpit display, a 12.3-inch configurable instrument cluster that, among other tricks, overlays Google Earth imagery on maps. Navigation and the Bang & Olufsen audio system also tag along. Our car came with the $1800 Driver Assistance package, $1250 nappa leather, and the $2500 S Sport package, which is required to get the $1150 Dynamic Steering. All in, this S5 is a $68,550 means to pursue Coronado.

Like the last-generation V-8–powered RS5, this coupe is rapid and capable, and, when it comes to passion-inducing driving tools, somewhat antiseptic. Though eager, it's a picture of perfect etiquette, arcing into safe understeer in tightening corners. There's no dancing with physics here, no risk, no awe—only the cold, stoic hand of Audi engineering aligning the S5's abilities with its driver's direction. Setting a wheel wrong will always be your own doing, because nothing about the S5 will draw you near that edge. No matter how hard it's pressed, it remains a sober, competent companion, one that will never make you sweat.

There are places for an adult's car. The Coronado Trail is not among them. A road this wild and unhinged deserves a machine imbued with the same general philosophy, a car honed to explore the limit. This is the sort of place to unload a fully baked supercar without fear of prison. But the S5, permeated by quiet confidence, is a car that will never be that raw; it is what we'd want to drive to this road and back from it, swapping into a Ferrari or a McLaren for the trail itself. Coronado, whose quest for gold ultimately took him all the way to present-day Kansas, left without his spoils. Rolling into Springerville, it's clear that the S5, on some level, shares his predicament. Its ease, confidence, and stability are allies most of the time. But on the Coronado Trail, a place as ungovernable as any road in America, we'd want a car to match.

Dance with the devil: U.S. Route 191 was once known as U.S. Route 666. Superstition, accidents, and a few stolen road signs fueled the change.

ROLLING START, 5–60 MPH	**5.6**
TOP GEAR, 30–50 MPH	2.8
TOP GEAR, 50–70 MPH	3.5
1/4-MILE	**12.9 sec @ 107 mph**
TOP SPEED	155 mph (gov ltd, mfr's claim)

HANDLING

ROADHOLDING, 300-FT-DIA SKIDPAD	**0.94 g**
UNDERSTEER	MODERATE

BRAKING, 70-TO-ZERO MPH

SHORTEST STOP	**150 ft**
LONGEST STOP	159 ft
FADE RATING	SLIGHT

WEIGHT

CURB	**3942 lb**
PER HORSEPOWER	11.1 lb
DISTRIBUTION	**F:** 56.7% **R:** 43.3%
TOWING CAPACITY	0 lb

FUEL

CAPACITY	15.3 gal
OCTANE	91 required
EPA COMBINED/CITY/HWY	24/21/30 mpg
***C/D* OBSERVED**	**21 mpg**

INTERIOR SOUND LEVEL

IDLE	39 dBA
FULL THROTTLE	75 dBA
70-MPH CRUISING	65 dBA

Shell V-Power NiTRO+ Premium Gasoline
The Official Fuel of CAR AND DRIVER

COMPETITORS

Among high-performance luxury-brand coupes, the S5 more than holds its own.

—

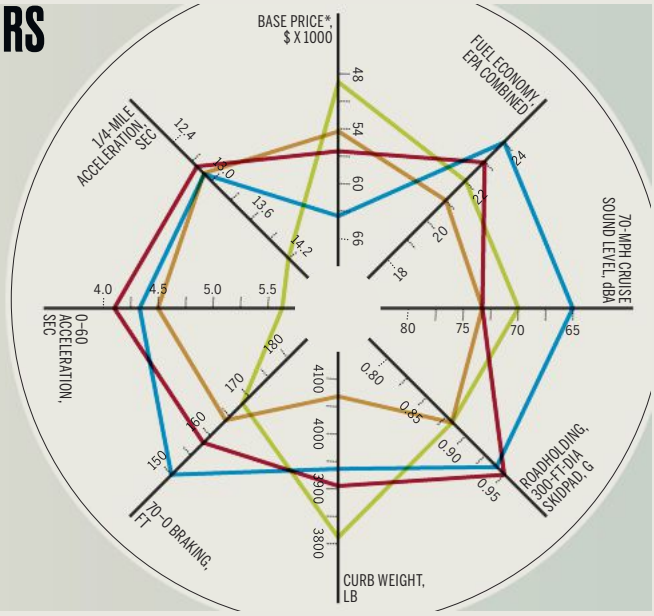
AUDI S5
3.0-L V-6, 8-SP AUTO

INFINITI Q60 RED SPORT 400 AWD
3.0-L V-6, 7-SP AUTO

MERCEDES-AMG C43 4MATIC COUPE
3.0-L V-6, 9-SP AUTO

LEXUS RC350 F SPORT
3.5-L V-6, 8-SP AUTO

*Includes performance-enhancing options.



Just the right amount of too much car.

Introducing the all-new Honda Civic Si.

Packed with a turbocharged engine with 192 lb-ft of torque,* rear wing spoiler, helical limited-slip differential, and a sport-tuned suspension, the all-new Civic Si gives you all the performance you can handle. And a few things after that.

*192 lb-ft @ 2100-5000 rpm (SAE net). Civic Si Coupe and Sedan shown. ©2017 American Honda Motor Co., Inc.

BOOT SCOOT BOOGIE

//////// MOBILITY /// SCOOTERS GET ////// THEIR OWN //// COMPARISON ////////// TEST. ///////////// BY //// JOHN PEARLEY ///////// HUFFMAN

//// PHOTOGRAPHY ///////////// BY ////// ROY RITCHIE

Mobility scooters are ubiquitous. At hot-rod shows, they fly in squadron formation with each pilot trailing a gray ponytail. Take your dog out for a constitutional and one will whiz by, forcing Fido off the sidewalk and into the gutter. Occasionally someone will get drunk, steal one, and drive it into a canal. Trader Joe's should add banking to the sweeper through the produce department; Walgreens and CVS sell them on their websites; and the scoots are now a go-to reference for jokes about growing old, alongside walk-in bathtubs and reverse mortgages. The future may soon bring autonomous flying cars with onboard Chipotle service. But the present belongs to crossover SUVs and mobility scooters. So, here's this comparison test. There's a crossover first drive on page 094.

You may think that mobility scooters are a fad with the half-life of selfie sticks, but demographics argue otherwise. There are about 75 million baby boomers in the United States, and the youngest of them turn 53 this year. The oldest are 71. They're aging into that part of life when bodies become fragile and, while modern medicine means they'll live long lives, many will need help getting around. Right behind are 66 million Gen-Xers, followed by millennials, whose numbers now match the boomers. You may not be in the market now, but we are all potential scooter owners.

Throw in other sources of decreased mobility (including illness and obesity), and at least one report projects that the worldwide mobility market, which includes everything from canes to scooters, will grow from $7.7 billion in 2015 to $14.6 billion by 2024.

To oversimplify, there are three-wheel scooters, four-wheel scooters, and motorized wheelchairs. And they're virtually all electrically powered using lead-acid batteries. There are dozens of different models, most built for sidewalks or the great indoors, and they top out at about 5 mph. But scooters for use on trails and paths are becoming common, and more-stylish models are coming. We recruited three for this surprisingly serious comparison.

C/D knows vehicles, but these scooters are medical devices. And no one scoot will be right for everyone. This also means that scooters are prescribed by doctors and often paid for by health insurance or Medicare. Abuses may occur.

In 2015, the company Hoveround, which had often advertised on *The Price Is Right* during the break before the showcase round that it could get patients into a scooter for "little or no cost," was accused by the Department of Health and Human Services' inspector general of billing Medicare $27 million for mobility devices that weren't medically necessary. Hoveround was invited to this test but turned down the opportunity with the explanation that it doesn't want any publicity at this time. So, well, there's that.

These scooters enable the personal mobility of people who would otherwise be restricted by physical challenges. But that doesn't explain the complete lack of cupholders.

/// 3. GOLDEN TECHNOLOGIES BUZZAROUND EX

This is the classic mobility scooter: simple in its engineering, lightweight and easily transported on a rack behind a sedan, comfortable for anyone under 330 pounds, and timelessly style-free. At only $2199, the Buzzaround EX is built for tight budgets and unpretentious personalities. It blends in like a Camry.

ATV makers stopped building three-wheelers years ago, and the mobility industry seems likely to follow. The single front wheel keeps the tiller steering light enough for anyone with limited arm strength to pilot, but there's an inherent instability that can be felt as the Buzzaround hits its 5.4-mph governed top speed. Hitting the office's legendary Indianapolis corner where the *C/D* art department transitions into the editorial cubicle farm, the rear-drive Buzzaround would gently lift the right rear wheel, with the rider feeling a queasy and tipsy sensation. It handled every mall, park, road, and indoor surface we threw at it and it never rolled. But it sometimes felt as if it would.

Opposite top: You're looking at 3.3 horsepower there, bud. Opposite right center: We roll three deep . . . carrying a head of celery in our basket, yo.

WHILL MODEL A
Price: $12,999 • Power: 2.4 hp
Weight: 247 lb • Capacity: 220 lb
0–5 mph: 1.5 sec

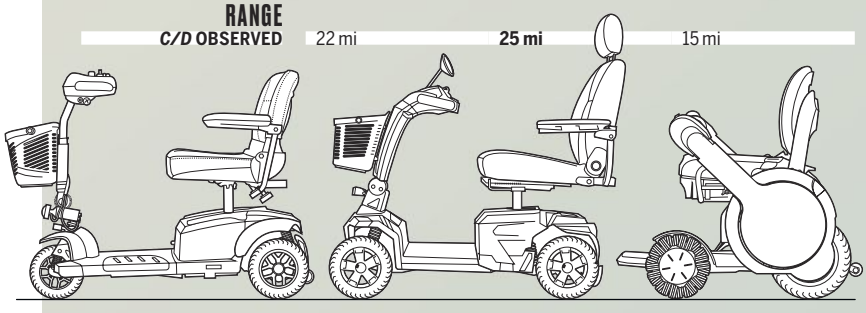
GOLDEN TECH BUZZAROUND EX
Price: $2199 • Power: 0.4 hp
Weight: 151 lb • Capacity: 330 lb
0–5 mph: 3.8 sec

PRIDE MOBILITY VICTORY 10 LX
Price: $2765 • Power: 0.5 hp
Weight: 229 lb • Capacity: 400 lb
0–5 mph: 3.4 sec

	GOLDEN TECH BUZZAROUND EX	PRIDE MOBILITY VICTORY 10 LX	WHILL MODEL A
PRICE	**$2199**	**$2765**	**$12,999**
DIMENSIONS			
LENGTH	45.0 in	47.0 in	39.5 in
WIDTH	22.0 in	22.2 in	23.7 in
HEIGHT	35.0 in	39.0 in	36.0 in
WHEELBASE	34.7 in	35.0 in	20.3 in
CAPABILITY			
CAPACITY	330 lb	**400 lb**	220 lb
TURNING RADIUS	42.0 in	65.0 in	**28.0 in**
GROUND CLEARANCE	2.2 in	2.2 in	**3.5 in**
MAX INCLINE	6.0 deg	6.0 deg	**10.0 deg**
POWERTRAIN			
MOTOR TYPE	permanent-magnet DC, 0.4 hp	permanent-magnet DC, 0.5 hp	2 permanent-magnet AC, combined output **2.4 hp**
BATTERY	air-cooled lead-acid, 0.8 kWh	air-cooled lead-acid, 1.0 kWh	air-cooled lead-acid, **1.2 kWh**
LB PER HP	377.5	458.0	**102.9**
DRIVELINE			
TRANSMISSION	1-speed direct drive	1-speed direct drive	1-speed direct drive
DRIVEN WHEELS	rear	rear	all
CHASSIS			
TIRES	Unbranded 9.1 x 3.0-6	Primo **F:** 10.4 x 3.6-6.5 **R:** 10.8 x 3.6-6.5	**F:** Omni wheel 9.8 x 2.3-5.5 **R:** Cheng shin 12.5 x 2.3-8.0

CAR AND DRIVER TEST RESULTS

ACCELERATION			
0–5 MPH	3.8 sec	3.4 sec	**1.5 sec**
1/4 MILE @ MPH	170.8 sec @ 5.4	171.2 sec @ 5.5	**160.9 sec @ 5.8**
TOP SPEED	5.4 mph (gov ltd)	5.5 mph (gov ltd)	**5.8 mph** (gov ltd)
CHASSIS			
BRAKING, 5–0 MPH	7 ft	**4 ft**	**4 ft**
WEIGHT			
CURB	**151 lb**	229 lb	247 lb
%FRONT/%REAR	30.5/69.5	30.6/69.4	38.5/61.5
RANGE			
C/D OBSERVED	22 mi	**25 mi**	15 mi



With 0.4 horsepower on tap, the Buzzaround is the least powerful of the gathered devices. But at a svelte 151 pounds, its power-to-weight ratio was second-best. Still, it took 3.8 seconds to zip up to 5 mph, or 0.4 second slower than the Pride scooter.

The Buzzaround's 42.0-inch turning radius made it easy to navigate the aisles at CVS, and without much in front of the rider, it was also a snap to reach items on higher shelves and dump them into the small, attached basket. The seat itself is flat, shapeless, and covered in cheap vinyl, but it's squishy enough to contour around even this author's awkward thunder butt.

A rocker switch directs the battery current to produce forward or rearward thrust. A rheostat allows the throttle to be fine-tuned to sustain walking speeds. Brake by releasing the throttle; it's fairly gentle. The second-place Pride Mobility Victory operates almost identically.

The Buzzaround is a high-value proposition. And that's tough to resist.

The Whill's front wheels have rubber rollers around the circumference, allowing them to move laterally when the power chair needs to spin around.

/// 2. PRIDE MOBILITY VICTORY 10 LX

Running the long, straight Mulsanne from *C/D*'s posh office reception area back to the clandestine testing garage, the Pride Mobility Victory 10 LX hunkered down at 5.5 mph. Blowing past a fresh crop of web-development hires, the coil-spring suspension smoothed every carpet divot while the four Primo tires swished in harmony with the 0.5-hp electric motor. Built to swallow entire yards in comfort, the Victory swept mere pedestrians aside with its electric horn while the LED turn signals flashed to signal the driver's indomitable will.

The rear-drive Victory is only two inches longer than the Buzzaround, but its fourth wheel means it feels more substantial and stable. Even on grass or uneven berms, the scooter remains composed. Unfortunately, the fourth wheel also increases the turning circle to 65.0 inches, 23 inches greater than the Buzzaround's, and enough to make turnarounds in the aisles at a local Meijer superstore three-point affairs. It also means more effort to move the steering tiller.

Weighing in at 229 pounds, the bulkier Victory takes more effort than the Buzzaround to muscle into a van or onto a rack, although each scooter can be disassembled into three pieces without tools. But the Pride scooter is 0.4 second faster to 5 mph than

ILLUSTRATIONS BY PETE SUCHESKI

the three-wheeler and stops three feet sooner. And at $2765, it's still affordable.

Rated to carry 400 pounds, the Victory became *C/D*'s scooter-to-scooter photography platform. It's not built for two, but with the driver in the nicely shaped seat, photographer Roy Ritchie could stand on the floorboard and shoot back to the other machines as they orbited the Village of Rochester Hills mall. And even while carrying that heavy load, the suspension remained supple and the scooter went through corners flat and secure. The Victory feels as if it could tow an Airstream across Montana. But assistant technical editor David Beard would like to see it equipped with an ashtray.

/// 1. WHILL MODEL A

Whill's Model A has all-wheel drive, is covered in *Star Wars*–style stormtrooper white plastic, and comes with an iPhone app for remote operation. And at $12,999, it costs almost six times what the Buzzaround EX does.

Launched in 2011, San Francisco–based Whill refers to its products as "personal electric vehicles" and not wheelchairs. The Model A is, however, a chair with wheels.

Vastly more complex than the scooters, the Model A's primary control is a one-hand joystick on the chair's right arm, with a three-position speed control located on the left. Using the joystick is intuitive; push forward to go forward, right to go right, etc. But it takes some acclimation for the moves to become graceful. And because it steers by varying the speeds of its four wheels, it can spin around practically within its own width. The turning radius is only 28.0 inches. Helping are front "Omni wheels" with rubber rollers around the circumference that allow the wheels to move laterally.

The 2.4-hp Model A is a mobility rocket ship. It rips to 5 mph in 1.5 seconds and tops out at a governed 5.8 mph while completing the quarter-mile in a blistering 160.9 seconds. Remote control may seem gimmicky, but it allows a friend to operate the chair while walking alongside it if the rider needs to nap. It's also useful for loading the chair into or out of a van.

The Model A's best features include how easily it handles off-path terrain; it can even climb low curbs. And the lack of apparatus in front of the rider also means the chair practically disappears from his or her view. It's easier to interact with people when there isn't a tiller acting as a barrier.

What holds the Whill back are its limited 220-pound capacity, the lack of onboard storage, a big-ticket price, and the fact that its design means that a van is almost mandatory to move it long distances. And who knows how well this tech-intensive machine will hold up over time?

Even so, we have seen the future, and it looks like a giant pair of Beats headphones for your ass.

GOLDEN TECHNOLOGIES BUZZAROUND EX
[+] NIMBLE, LIGHT STEERING, EASY TO TRANSPORT.
[–] UN-QUICK, SOMEWHAT TIPSY, PLAIN WRAPPED.
[=] FITS INTO LIFE WITHOUT REDEFINING IT.

PRIDE MOBILITY VICTORY 10 LX
[+] HIGHEST PAYLOAD, CUSHY RIDE, LONG-HAUL COMFORT.
[–] AWKWARD IN TIGHT QUARTERS, CAN BE A CHORE TO TRANSPORT.
[=] THE F-150 OF PERSONAL MOBILITY.

WHILL MODEL A
[+] QUICK, SLICK, AND SUPER TRICK.
[–] OCCASIONALLY NERVOUS OPERATION, NO STORAGE, LOW WEIGHT CAPACITY, HIGH PRICED.
[=] BOLDLY SCOOTING WHERE NO SCOOTER HAS SCOOTED BEFORE.

FINAL RESULTS

Shell V-Power NiTRO+ Premium Gasoline
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	Maximum points available	WHILL MODEL A	PRIDE VICTORY 10 LX	GOLDEN BUZZAROUND EX
RANK		**1**	**2**	**3**
VEHICLE				
DRIVER COMFORT	10	8	**9**	7
ERGONOMICS	10	**9**	8	7
WEIGHT CAPACITY*	10	6	**10**	8
CARGO SPACE*	5	0	**5**	4
FEATURES/AMENITIES*	10	8	**10**	7
FIT AND FINISH	10	**9**	7	6
PORTABILITY	10	5	7	**8**
STYLING	5	**5**	4	3
REBATES/EXTRAS*	5	0	**1**	**1**
AS-TESTED PRICE*	20	5	17	**20**
SUBTOTAL	95	**55**	**78**	**71**
POWERTRAIN				
0–5 MPH ACCELERATION*	20	**20**	11	9
MOTOR BRAKING*	10	**10**	**10**	7
SPEED CONTROL	10	**8**	**8**	7
SUBTOTAL	40	**38**	**29**	**23**
CHASSIS				
OFF-ROAD ABILITY	10	**10**	6	5
STEERING EFFORT	10	**8**	7	**8**
MANEUVERABILITY	10	**9**	5	7
RIDE	10	**9**	**9**	7
SUBTOTAL	40	**36**	**27**	**27**
EXPERIENCE				
FUN TO DRIVE	25	**24**	17	16
TOTAL	200	**153**	**151**	**137**

*These objective scores are calculated from the scooter's dimensions, capacities, rebates and extras, and/or test results.

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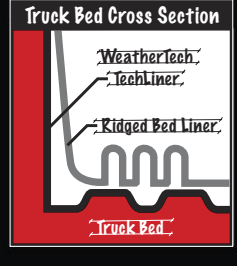

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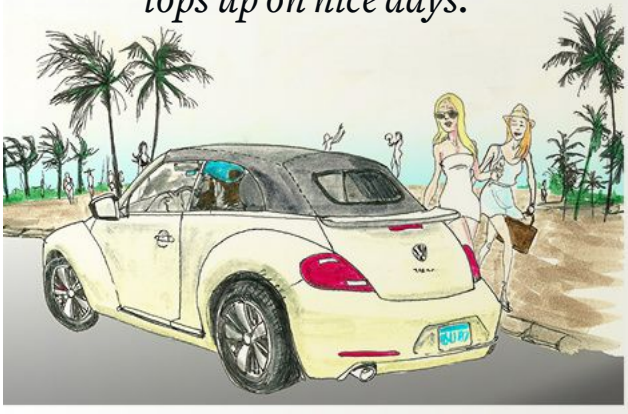
The Car and Driver Guide to Automotive Bull

It's all around us. But if you can see it and smell it, then you can avoid stepping in it. _by Jared Gall

The mainstream is an easy place to drown in cow pies. Just look at the news, or a TED Talk. And few things are more mainstream than cars. There are more than 240 million light vehicles registered in America, and lately we've been buying some 17 million new ones per year. While that churn provides enthusiasts our very own 24-hour news cycle of product intel, it also enables a high-flow fire hose of crap—from marketers, from indifferent consumers who see the wonder that is a modern car as a mere commodity, and from the media. Media other than us, of course. What follows is our field guide to automotive bullshit, because awareness is the first step in an effective defense. At least, we hope so. Because if there's no point to this, it would just be whining. And that'd be bullshit.

- "Consumer."
- **24-hour news cycles.**
- Roadkill. Some chimpanzees have learned to look both ways before crossing busy streets. Time to up your game, raccoons.
- **States without mandatory helmet laws.**
- Automakers rebranding themselves as "mobility providers."
- **Not knowing how to drive a manual transmission. It's really not that hard. And in most cases, if a manual wouldn't improve your experience, you're driving the wrong vehicle. Preferring that a computer control your shifting is one symptom of a handicapped ability to love.**
- Sports-car manufacturers too chicken-shit to send their cars to Lightning Lap.
- **Sports cars without shredded tires.**
- Pickups with pristine beds.
- **The Instagramification of vanning.**
- Formula E's #FanBoost. Prior to the race and during the first six minutes, whichever three drivers get the most tweets get an extra 40 horsepower for five seconds. If they're going to do power-ups, it should include Mario Kart–style upgrades for as long as it takes to chase down and destroy the #FanCurse driver.
- **Imperial measurements. C'mon, America, let's join the rest of the world.**

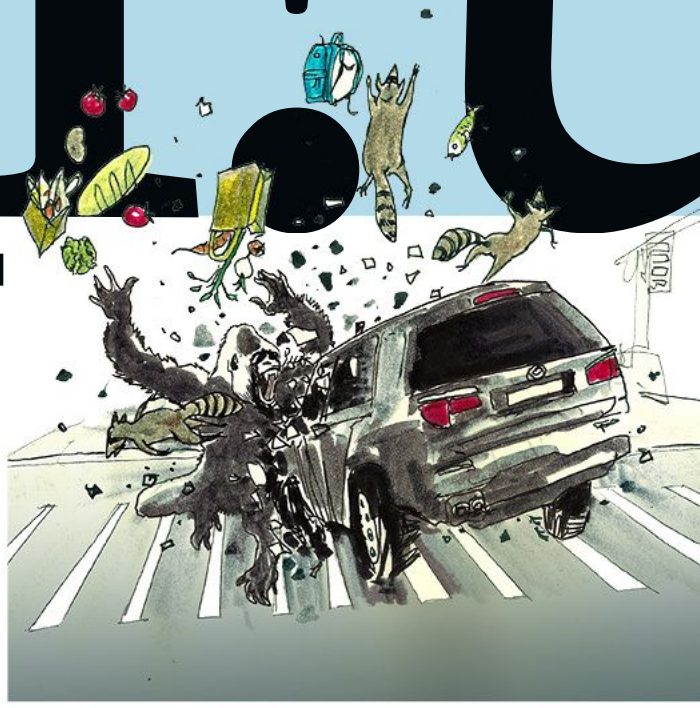
Convertibles with their tops up on nice days.



The Irrational Hatred of: ▸ *Minivans.* ▸ *Moderately sized wheels.*

illustrations by VIN GANAPATHY

.sh!t



rest of the world. Here at *C/D*, we're already on metric time and will be transitioning to a metric alphabet in the coming months.

▿ *Massaging seats—except for the Ford/Lincoln ones that really dig into your rear end.*

▹ Your tired jokes about Subarus being driven by lesbians.

▹ "Pedal misapplication." An inexplicably gentle euphemism for unforgivable stupidity.

▹ Bumper stickers that are already implied by the vehicle: "Go vegan!" on a Prius, or promoting gun rights on a pickup. Not Bullshit: "Driving a hybrid leaves me more money for ammo."

▹ How little karting we and you do. Everybody could use more.

Autonomy: The Trolley Problem Is Not the Problem

—

A common discussion around autonomous cars ties into an old hypothetical scenario in ethics called "the trolley problem." In this thought experiment, a trolley is barreling out of control toward five people, whom it will surely kill. You could flip a switch and divert the trolley onto a sidetrack, where it will kill only one person. Do you flip the switch, thereby taking an active role in one death, or do nothing, allowing five deaths without any responsibility?

The autonomous equivalent is a self-driving car making decisions about hitting people in a crosswalk versus at an outdoor café, hitting pedestrians versus hitting solid objects and endangering its own driver and occupants, plowing over Earth's last western lowland gorilla rather than running through the rest of the zoo, etc. The hand-wringers wonder how we can possibly program a car to make these decisions. They wonder if this isn't our Ian Malcolm could/should moment. But the flaw in these scenarios is the assumption that a human driver makes a decision at all. It's proved daily that we just hit whatever we're pointed at when we panic. A machine couldn't possibly do worse.

▹ Head-up displays. ▹ Station wagons. ▹ The Prius. ▹ Lewis Hamilton. ▹ Formula 1. ▹ Stability control. ▹ Bicycles. ▹ Turn signals.

Gesture control.

▹ **Masking turbo- or supercharger noise. To thine own self be true, engines. If you're employing forced induction, be honest about it.**

▹ We're not even going to mention synthesized engine noise.

▹ **The panic button on key fobs.**

▹ That GM vehicles illuminate their reverse lights when remotely unlocked. "He's backing up! Oh, wait. He's 100 yards over there and can't find his Tahoe."

▹ **Driver vanity mirrors.**
I like them—Ed.

▹ The presumed link between liking cars and liking watches.

▹ **Damage-off mode.**

▹ Cannonball rip-offs.

▹ **Smart. That it soon will sell only EVs in the U.S. and Canada is an admission of failure, which is in itself not bullshit.**

▿ *Hating the modifications someone else made to their car when your own car is factory stock.*

Relatives Versus Absolutes: The Difference Matters

—

Most "Eco" modes are bullshit, but then there's the platinum-plated bullshit of vehicles that encourage a light foot by illuminating a little green "eco" or some equivalent in the instrument panel whenever the driver isn't flooring it. It's like having Bluetooth-enabled sensors on your teeth and contact lenses so that "skinny" flashes in your peripheral vision any time you're not chewing. At the most, it should say, "not actively getting fatter."

▹ **Balance of Performance. If a Nissan Altima is competitive against a Porsche Cayman, something's wrong.**

▹ But also, spec racing. To an extent, isn't it just a contest of who can be more anal?

▹ **Capacitive touch.**

▹ Any secondary controls other than knobs and buttons.

▹ **Carbon-fiber trim. Trim is by nature superfluous. This is not what Colin Chapman had in mind when he said to "add lightness."**

▹ "Midnight," "Blackout," or any other "special" edition that just adds black stuff.

▹ **MSRP. Not included is destination and delivery, which is added no matter what price you end up negotiating.**

▹ Not negotiating a new-car price.

▹ **Just about every aspect of the dealership experience.**

▹ Mid-grade gas.

▹ **Commuting in a truck.**

▹ Internet-cool cars. If it's mostly cool because it's not cool, then it's not really cool, is it?

▹ **Non-PRNDL shifters** ***[see Dyer's column, p. 034].***

▹ But also: That a person would buy a vehicle with a

The Imminent Arrival of: ▹ *The car-sharing economy.* ▹ *Chinese cars.* ▹ *Autonomy.* ▹ *Fuel-cell cars.* ▹ *Flying cars.* ▹ *An attractive Subaru.* ▹ *An effective voice-control system.*

Behavioral Bullshit:

▹ Not stopping behind the white line. Why do you think it's there?! Do you even bowl?

▹ **Excessive braking.**

▹ Cornering at walking speed.

▹ **Not driving at least the speed limit. The purpose of driving is to get somewhere quicker than walking. Do that.**

▹ Left-lane squatting. The left lane is for passing and nothing else.

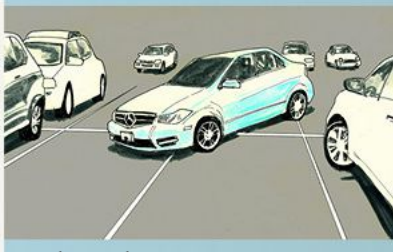
▹ **Leaving your brights on instead of politely flashing to communicate to the driver of an oncoming car that theirs are on.**

▿ *Not understanding roundabouts.*

▹ Not understanding the zipper merge.

▹ **Driving on all-season tires and complaining that your car can't handle snow.**

▿ *Shitty parking.*



▹ Violating the on-ramp merge-lane rule and passing the cars ahead when a bunch of you are merging behind a semi.

▹ **Not accelerating aggressively at the first opportunity when you're the first car in that line.**

▹ Not accelerating aggressively away from a light when you're first in line.

▹ **Not accelerating aggressively out of construction zones.**

▹ Not accelerating aggressively at every opportunity. Getting out of everyone else's way helps all of us get where we're going.

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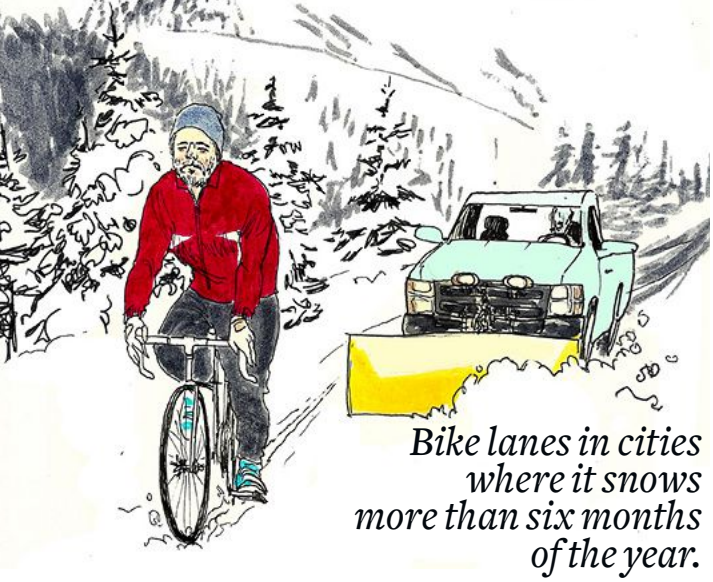

Bike lanes in cities where it snows more than six months of the year.

novel interpretation of such a fundamental control and then not pay attention when using it. Surely you can spare this a few seconds out of your day.

▹ **Any function locked out while a vehicle is in motion.**

▹ The J.D. Power Initial Quality Study. It doesn't measure initial quality, it measures the amount of stuff people can't figure out about their new cars.

▹ **Any system that warns the driver with a beep, chime, or flashing light.**

▹ In-car PA systems, as found in the optioned-up Range Rovers. Do we really want the offspring of the hyper-privileged learning how to bark orders from the rear seat?

Really, We've Got This

Vehicles today do more for us than they ever have. But some go beyond accommodating to fussy overthinking. In modern BMWs, the first push of the power button doesn't turn the car all the way off, and the first pull of the door handle merely unlocks the door. So you arrive at your destination, throw the car in park, then turn it off twice and pull the door handle twice to get out. It's the slightest of intrusions, but what was so hard about the process of turning a car off that it needed to be improved on by adding steps?

And Jaguar Land Rover's stop-start system tries to anticipate when it should do its normal thing and when it should shut the car down entirely. Sometimes when you shift into park, it turns the car off, relieving you of the burden of pushing the off button. Sometimes. Other times, it'll turn the engine off before you shift into park, then restart it when you shift into park. Still other times, the engine will still be running when you shift into park and then shut itself off a split second before you press the button, so that when you try to turn the car off, you turn it on again. You know, machines, you can probably just leave this one to us.

▹ **Nissan basically giving up on the 370Z.**

▹ Diesel passenger cars.

▹ **"Coupe" SUVs and sedans.**

▹ Self-steering timers. Either steer for me or don't, but don't fight me on the line through a corner. And if you are going to steer for me, do better than I would were I drunk—which you don't.

▹ **Mazda not being among the best-selling brands in the world.**

▹ Travis Kalanick.

▹ **Magnus Walker's beard.**

▹ The '95 Mitsubishi Eclipse GS-X a reader gave us a decade ago, asking us to "do something cool" with it. The coolest things we've done so far are let the gas go bad and drop some lumber on it. But hey, we brought it with us when we moved from Hogback.

▹ **Our country's lax driver-licensing procedures.**

Regulatory Bullshit:

▹ **Unrestrained-occupant crash tests.**

▿ *That there's not a nationwide standard duration for yellow lights.*

▹ **That crash-test regulations push cars to get heavier while fuel-economy regulations drive them to get lighter, but subsidies keep our gas among the cheapest in the world so that nobody here wants the cars that meet fuel-economy requirements, and still we resist the fuel tax desperately needed to fund infrastructure improvements.**

That Car and Driver doesn't have a party bus.

▹ Luxury cars charging for basic features, such as any color other than black or white. It's like expensive hotels charging for Wi-Fi when it's free at the Holiday Inn Express.

▹ **Most of our speed limits.**

▹ Series-built hot rods and other efforts to commoditize originality.

▹ **Texting while driving.**

▹ Traffic schools. Though at least now most everyone knows that they're just revenue-generating schemes.

▹ **That the Cadillac ATS-V doesn't have an LT1—or 4.**

▹ Import restrictions.

▹ **Vanity plates that aren't funny. So, very nearly all of them.**

▹ License-plate scanners.

▹ **CGI-enhanced car chases in movies.**

▹ Gulf livery on new cars.

▹ **Gulf livery on any non-car goods.**

▹ Fieros without Italian-supercar body kits.

▹ **Paddle shifters affixed to the steering wheel rather than the steering column. You're really going to grab that downshift at full steering lock?**

▹ Living one's life a quarter-mile at a time.

▹ **The Mitsubishi Mirage.**

▹ Drift mode. If you need a special mode to do it, you can't really do it.

▹ **"Real people, not actors."**

▹ Focus groups.

▹ **Target buyers.**

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2016 BMW 740i

Arrival: Apr/2016
Departure: Apr/2017

—

BMW gets a little too comfortable with its big, cushy sedan. _by Eric Tingwall

Even as crossovers continue to conquer America, and seemingly every automaker has a two-door vanity project to cast a glow over its lineup, big luxury sedans still project gravitas in the German-car business. Audi's, BMW's, and Mercedes' largest cars remain totems of brand values and stylistic themes, as well as vanguards for the technologies that trickle down to the rest of the fleet.

A year and 40,000 miles with Munich's latest flagship, a 2016 BMW 740i, confirms what we've been saying for almost a decade: The soil under BMW HQ has truly shifted. The 7 makes clear that the drift of the 3- and 5-series from sports sedans to less athletic luxury cars isn't a fluke but a brand-wide movement. It's evident in the way this limo rolls down the road with enough float in the suspension to raise the *Edmund Fitzgerald*.

Rants & Raves

"I'd like just the opposite of what this 7-series offers: more body control and less impact harshness over sharp lateral seams."
—Dave VanderWerp

"This car is a boat. Put it in comfort-plus mode and it feels like a Kia K900."
—Jeff Sabatini

That buoyant ride, in concert with a placid cockpit, plush seats, and a 500-plus-mile range, definitely had its virtues. The 7-series shined brightest when our staffers treated it as a more dignified alternative to commercial air travel. Our drivers piloted the 740i through 12 states, one Canadian province, and the District of Columbia during its 12-month stay, filling the logbook with high praise from occupants arriving refreshed and relaxed.

But serene highway cruising is hardly special in this segment of German big boys, and BMW's failure to stake out a more compelling position leaves the 7-series chasing the competition. The latest S-class introduced Mercedes' progressive and opulent interiors, Audi's A8 champions intuitive tech, and the Cadillac CT6 is the driver's choice. BMW could have delivered a knockout by blending those attributes into the complete package. Instead, it served up a conservative evolution of aging design motifs, dubious infotainment advances, and the soggiest suspension from a Bimmer in recent memory.

Our long-term 740i hid its biggest technological advance beneath a coat of rich Jatoba Brown Metallic paint. The 7's structure is a cocktail of aluminum, steel, and carbon fiber, the only visible clue being a pair of "Carbon Core" badges behind the doors on the B-pillars. The weight savings helped our 740i undercut a Mercedes-Benz S550 (which admittedly lugs around two extra cylinders and one additional turbocharger) by more than 400 pounds. And while the dynamics engineers failed to make full use of this advantage, the sophisticated material mix delivers a sturdy structure and a cabin insulated from the din of traffic and the rush of wind.

It's even more difficult to quantify the benefits of the in-car tech. With only me-too semi-autonomous features such as a lane-centering function that falls short of a true self-steering system, BMW's hallmark for the 7-series is literally a bunch of hand waving. Gesture Control gives front-seat occupants six hand motions that can raise or lower the volume or dismiss an incoming phone call by miming a little routine in front of the touchscreen. Even after a year of exposure, this sort of orchestral conducting proved less precise and more hassle

photography by MARC URBANO

“THIS CAR SOAKS UP MILES LIKE A SPONGE. IT RIDES ALMOST AS WELL AS A ROLLS-ROYCE AND IS NEARLY AS QUIET TO MY EAR.”

—K.C. COLWELL,
SENIOR TECHNICAL EDITOR

than using the buttons and knobs on the steering wheel or the center console. We also felt ridiculous talking to our car via sign language.

Our 740i came with an optional $250 key wearing a tiny touchscreen that can be used to precondition the cabin climate or check the status of the door locks and the remaining fuel range. But the operating range of this key is trivial—far shorter than a conventional key fob's—and the need to recharge it regularly (either by plugging it into a wall or slipping it into a wireless charging holster under the center armrest) negates the convenience of permanently stashing a proximity key in a purse or a jacket pocket.

This 7-series excels where this class has excelled for decades, with space and lavish accouterments. As all U.S. 7-series now ride on the long wheelbase that's optional in Europe, first-class legroom comes standard. The cushy rear seats with 16-way adjustability can cool, heat, or knead your backside as needed and are part of the $3900 Luxury Seating option. That kit also includes a heated steering wheel, heated front and rear armrests, and a Samsung tablet docked in the rear-seat armrest so passengers can control the audio, climate systems, and the ambient lighting, as well as open and close various sunshades around the car.

Our 740i was equipped with the $4100 Executive package, which includes power rear-window shades, 22-way ventilated front seats, a head-up display, a leather-wrapped dash, and ceramic controls that replace many of the plastic knobs and buttons. For $1900, the Driver Assistance Plus package added blind-spot monitoring, lane-departure warning, front-collision mitigation with pedestrian detection, parking sensors, and four cameras that stitch together a view of your surroundings. Upgrading to 20-inch wheels cost $2600, a two-pane glass roof with LED accent lighting added $900, and a spare tire tacked on $150. That last item proved to be a greater hindrance than a help. The spare raises the trunk floor six inches, and its usefulness was diminished by the run-flat summer tires on our test car.

All in, the car bore $13,800 in options for a total bill of $96,095. If that number seems positively patrician, know that it is actually at the low end for a car that you can lard up with options to more than $180,000. And it's probably fair to say the added mass of all these options helped to foil, at least somewhat, our sport-limo expectations.

The bottom line did benefit from our engine choice, the entry-level single-turbo inline-six. Here, the 7-series delivered a different kind of

Above left: This man is either trying to adjust the audio volume via gesture control or he's scolding the 740i. Either way, folks gonna think he's crazy.

Rants & Raves

"This car is adaptive cruise control and a massaging driver's seat away from road-trip perfection."
—Alexander Stoklosa

"This inline-six is magic, and it's a joy to have it work a bit harder here in a heavier application."
—Tony Quiroga

"This 7 has convinced me that BMW has lost the scent."
—Don Sherman

Service Timeline:
Tired out.

Key: - Repairs - Damage - Maintenance - Normal Wear - Oil Additions

April 12, 2016
83 miles: BMW 740i begins its long-term test

July 6, 2016
9585 miles: Dealer replaces the fuel-filler door that detached from the hinged backing plate under warranty, $0

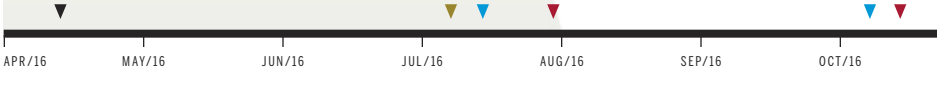
July 13, 2016
9905 miles: Dealer performs oil change and inspections, $0

July 29, 2016
11,767 miles: A pothole flattens the left-front tire, which is replaced at a BMW dealership outside Chicago, $501

October 6, 2016
21,114 miles: During the second oil change, our dealer also replaces the cabin air filter and installs a new battery per a technical service bulletin, $0

October 13, 2016
21,621 miles: Dealer installs a new fog-lamp cover and lower grille to repair the damage from a raccoon strike, $486

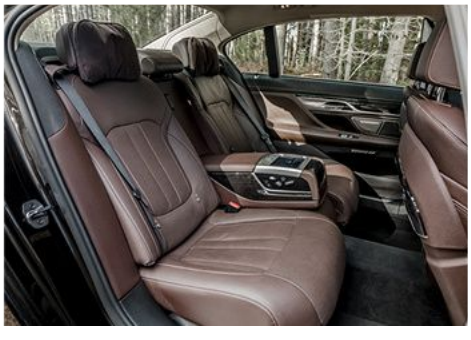
November 2, 2016
23,460 miles: We replace the right-front tire after it develops a bubble in the sidewall, $393



comfort: a soul-warming reassurance of BMW's engineering prowess to counter our faltering faith in BMW chassis tuners. The 3.0-liter engine makes a convincing argument that Bayerische Motoren Werke hasn't entirely left its roots behind. The straight-six's humble yet hardworking 320 horsepower and 330 pound-feet of torque effortlessly marshaled our 7's 4385 pounds with always-on thrust, free-revving enthusiasm, and satiny refinement. The logbook contained endless mash notes for the six-cylinder's performance and manners, and, tellingly, not one staff member ever wished for the 7's optional 445-hp V-8 or the 601-hp V-12 that became available for 2017 models. Crunching the fuel-economy data revealed that our 740i averaged 26 mpg, beating the EPA's 24-mpg combined rating.

The six-cylinder pairs with the dependable ZF eight-speed-automatic transmission, as quick-witted and crisp-shifting as ever. Together this duo motivated our rear-drive 7-series to 60 mph in 4.8 seconds and through the quarter-mile in 13.4, once the break-in period passed. We must have lost a few ponies over the course of 40,000 miles, though, because both of those numbers slowed by 0.3 second during the car's exit exam.

The 740i's chassis figures—0.86 g around the skidpad and 159 feet stopping from 70 mph—suggest a competent performer, but the car revealed an entirely different personality to the driver. The 7-series rides and handles with a soft and imprecise character that deputy online editor Dave VanderWerp compared with "the old Cadillac paradigm." The car wallows over dips and rises and lists in corners. Yet despite the Jell-O in the suspension, expansion joints and potholes still managed to thump their way into the cabin with shocking clarity. Activating the 7's sport mode only made these sharp tire impacts more jarring and did little to quell the unseemly body motions. We felt this pounding in our wallets, too, as we replaced three tires and



November 16, 2016
24,977 miles: The 740i's onboard maintenance minder asks for a dealer inspection, during which the technician also prematurely replaces the oil, $0

November 22, 2016
25,433 miles: We fit the 7 with Pirelli Winter Sottozero Series II tires

February 10, 2017
33,802 miles: We replace the left-front winter tire due to a bulge in the sidewall, $384

February 28, 2017
34,883 miles: Dealer changes the oil and replaces both engine and cabin air filters. Inoperative ambient lighting is fixed by plugging in a connector in the passenger footwell, $0

March 31, 2017
39,422 miles: We replace a bent front wheel, $933

April 10, 2017
40,000 miles: Long-term test ends

TOTAL COSTS

MAINTENANCE	$0
NORMAL WEAR	$0
REPAIR	$0
DAMAGE AND DESTRUCTION	$2697
GASOLINE (@ $2.70 PER GALLON)	$4154

SERVICE

DEALER VISITS (SCHEDULED/UNSCHEDULED)	4/2
DAYS OUT OF SERVICE	0
UNSCHEDULED OIL ADDITIONS	0 qt

Rants & Raves

"The ride is too soft and wallowy in comfort, and sport makes it flinty."
—Mike Sutton

"The array of cameras fitted to every corner combats the fact that you can't see its corners from the driver's seat."
—Josh Jacquot

"I drove the 740i almost 2000 miles with no back pain at all, which is not normal for me."
—Annie White

one wheel during our test. Perhaps that's the punishment we deserve for believing we could run 20-inch wheels and low-profile rubber on Michigan roads.

A run-in with an errant, now ex-raccoon excised $486 for the replacement of a fog-lamp cover and lower grille, but our running costs were limited to the price of premium unleaded. Our four service visits were covered by the factory under BMW's four-year, 50,000-mile free maintenance program. The fuel-filler door separated from the hinged backing plate at 8600 miles (replaced under warranty), and when the driver's-side ambient lighting went dark around 35,000 miles, the dealer traced it to a loose connector. Our dealer also preemptively replaced the battery during the second maintenance visit per a technical service bulletin.

The 7-series lives up to the most basic promise of a big, comfortable sedan but goes no further. For better and worse, the 7-series occasionally feels like riding a pillow-top mattress through a carnival bounce house. That makes for divine long-range comfort, but also a less-than-satisfying daily driver. Spending near-six-figure money shouldn't require this much compromise when the highway journey ends with a tight cloverleaf exit ramp. The competition shows that it's possible to deliver first-rate refinement without so much isolation, leading us to conclude that when it comes to the 7-series, BMW has become too comfortable.

On the outside, the 740i is all brown, blobular, and bromidic. Inside, it's a wonderland of glowing lights, wriggling seats, and small electric miracles.

2016 BMW 740i

PRICE AS TESTED **$96,095**
BASE PRICE **$82,295**
VEHICLE TYPE: front-engine, rear-wheel-drive, 5-passenger, 4-door sedan
ENGINE TYPE: turbocharged and intercooled DOHC 24-valve inline-6, aluminum block and head, direct fuel injection
DISPLACEMENT ..... 183 cu in, 2998 cc
POWER ..... **320 hp @ 6500 rpm**
TORQUE ..... **330 lb-ft @ 1380 rpm**
TRANSMISSION ..... 8-speed automatic with manual shifting mode
WHEELBASE ..... 126.4 in
LENGTH ..... 206.6 in
WIDTH ..... 74.9 in
HEIGHT ..... 58.2 in
CURB WEIGHT ..... 4385 lb

WARRANTY

4 years/50,000 miles bumper to bumper
12 years/unlimited miles corrosion protection
4 years/unlimited miles roadside assistance
4 years/50,000 miles scheduled maintenance

MODEL-YEAR CHANGES

2017: The V-12 returns in the M760i xDrive. The Display Key is standard, remote-controlled parking is optional.

CAR AND DRIVER TEST RESULTS

PERFORMANCE

ZERO TO 60 MPH:
NEW ..... 4.8 sec
40,000 ..... 5.1 sec
ZERO TO 100 MPH:
NEW ..... 11.9 sec
40,000 ..... 12.4 sec
ZERO TO 150 MPH:
NEW ..... 33.2 sec
40,000 ..... 35.1 sec
ROLLING START, 5–60 MPH:
NEW ..... 5.6 sec
40,000 ..... 5.8 sec
1/4-MILE:
NEW ..... 13.4 sec @ 105 mph
40,000 ..... 13.7 sec @ 104 mph
BRAKING, 70–0 MPH:
NEW ..... 159 ft
40,000 ..... 159 ft
ROADHOLDING, 300-FT-DIA SKIDPAD:
NEW ..... 0.86 g
40,000 ..... 0.88 g
TOP SPEED ..... 156 mph (governor limited)
EPA FUEL ECONOMY, COMBINED/CITY/HWY ..... 24/21/29 mpg
***C/D*-OBSERVED FUEL ECONOMY** ..... 26 mpg

LIFE EXPECTANCIES

(ESTIMATED FROM 40,000-MILE TEST)
FRONT TIRES ..... 35,000 miles
REAR TIRES ..... 35,000 miles
FRONT BRAKE PADS ..... more than 100,000 miles
REAR BRAKE PADS ..... more than 100,000 miles

WHAT BITS AND PIECES COST

HEADLAMP $3385
ENGINE AIR FILTER $42
OIL FILTER $20
WHEEL (FRONT/REAR) ..... $1100/$1340
TIRE (FRONT/REAR) ..... $374/$368
WIPER BLADES (PAIR) $65
FRONT BRAKE PADS $347

5-YEAR ESTIMATED COST OF OWNERSHIP

YEAR	❶	❷	❸	❹	❺	TOTAL
DEPRECIATION	$34,920	$13,000	$8075	$7525	$6225	**$69,745**
FINANCING	$2635	$2088	$1523	$939	$335	**$7520**
FUEL	$1558	$1644	$1731	$1788	$1846	**$8567**
INSURANCE	$2654	$2697	$2748	$2803	$2859	**$13,761**
TAXES AND FEES	$4960	$98	$92	$88	$82	**$5320**
MAINTENANCE AND WEAR	$0	$0	$0	$520	$192	**$712**
REPAIRS	$0	$0	$0	$230	$360	**$590**
TOTAL	**$46,727**	**$19,527**	**$14,169**	**$13,893**	**$11,899**	**$106,215**

Depreciation data from ALG. Based on 15,000 miles per year.

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After
Quickly dissolves oil stains from driveways, garages and parking areas.
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in participating stores
ACE
The helpful place.
BOND AUTO PARTS
Do it Best
THE HOME DEPOT
NAPA

Fleet Files:
Here's how our other long-term vehicles are faring in their 40,000-mile trials:

▲ *Newcomer*

2017 CHRYSLER PACIFICA TOURING-L PLUS

Arrival: Jan/2017
Miles: 11,124 Observed mpg: 22

—

When it comes to efficient transport for a flock of family members or friends—and having any cargo room whatsoever left over for their stuff—the right answer is a minivan. And, right now, we think Chrysler's overhauled and renamed minivan, the Pacifica, is the one to have. It retains the unique ability to tuck its second-row buckets into the floor while adding gobs of features and blossoming stylistically inside and out. All nonhybrid Pacificas get a 287-hp V-6 and a ZF nine-speed automatic. We made ours the $39,390 Touring-L Plus model, as it's the least expensive way to get the new, child-distracting rear-seat entertainment setup with two 10-inch touchscreens in the second row. And it's clear from the driver's seat that the minivan's dynamic game has been upped substantially, as the seven-seater's initial test results—cornering at 0.87 g and stopping from 70 mph in 164 feet—are shockingly similar to those of our long-term E46 BMW M3 from 2002 (three cheers for massive tire-technology progress). Other relevant and impressive stats that we've seen thus far: a 500-mile range and a couple of single-tank averages as high as 29 mpg. After the Pacifica's first service, a quick $86 stop for an oil change and tire rotation at 10,000 miles, we're ready for summer road-tripping. *—Dave VanderWerp*

2017 Jaguar XE 35t R-Sport AWD

Arrival: Sep/2016
Miles: 17,849
Observed mpg: 22

—

With nearly half our test complete, the XE has already given us a full complement of annoyances, including recalls, flat tires, infotainment glitches, and repeat dealership visits that failed to resolve a cacophony of underhood whining, rattling, and vibrations that, apparently, we're just going to have to get used to. Yet, most of us thoroughly enjoy driving the car, which offers ample power and grip. Complaints about a tight back seat and an unimaginative interior are outweighed by raves for its superlative steering and playful chassis. And the XE's unassuming style suits our sensibilities. You take the good, you take the bad, you take them both and there you have the facts of life.
—Jeff Sabatini

2016 Nissan Titan XD Pro-4X Diesel

Arrival: Jul/2016
Miles: 25,043
Observed mpg: 15

—

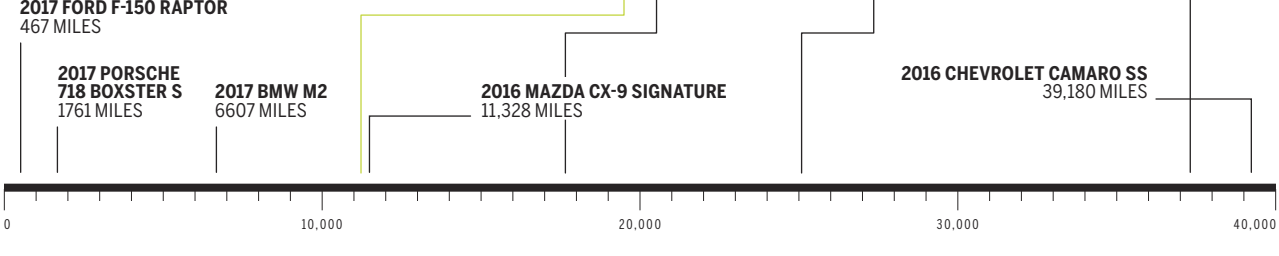
The job of a workhorse can be thankless: Witness the dearth of praise in our Titan XD's logbook. Despite its comfy seats and its effectiveness as a mover of winter toys and stricken jalopies, drivers have continued to comment on the stubbornly uncouth automatic transmission, the difficulty it takes to climb into the cabin without running boards, and its ravenous appetite for diesel exhaust fluid (we've added nearly 26 gallons thus far). We've had no other expenditures since our last update, other than fuel, which the XD is still consuming at the rate of 15 mpg. We will, however, be returning soon to the dealer to have the tailgate latch replaced once more, as a recent "fix" made the handle nearly impossible to operate.
—Mike Sutton

2016 Mazda MX-5 Miata Club

Arrival: Oct/2015
Miles: 37,428
Observed mpg: 33

—

Warm weather has returned to our Midwest headquarters. That means two things: 1. We're dialing back on our meds, and 2. We're dropping the Miata's top every chance we get. Need to move the car to a different part of the parking lot? No reason to do so with the top up. The squeaks and rattles we heard during winter's coldest commutes have vanished, as has the sad shiver our Miata exhibited while idling in what felt like absolute zero. There, there, little guy. Oh look, the sun! You made it, buddy! Our only persistent problem has been a tire-pressure warning that erroneously lit up a few times while the Miata wore winter tires. The pressures were actually fine. It's easy to reset, though, and we have its summer tires back on now anyway.
—Daniel Pund



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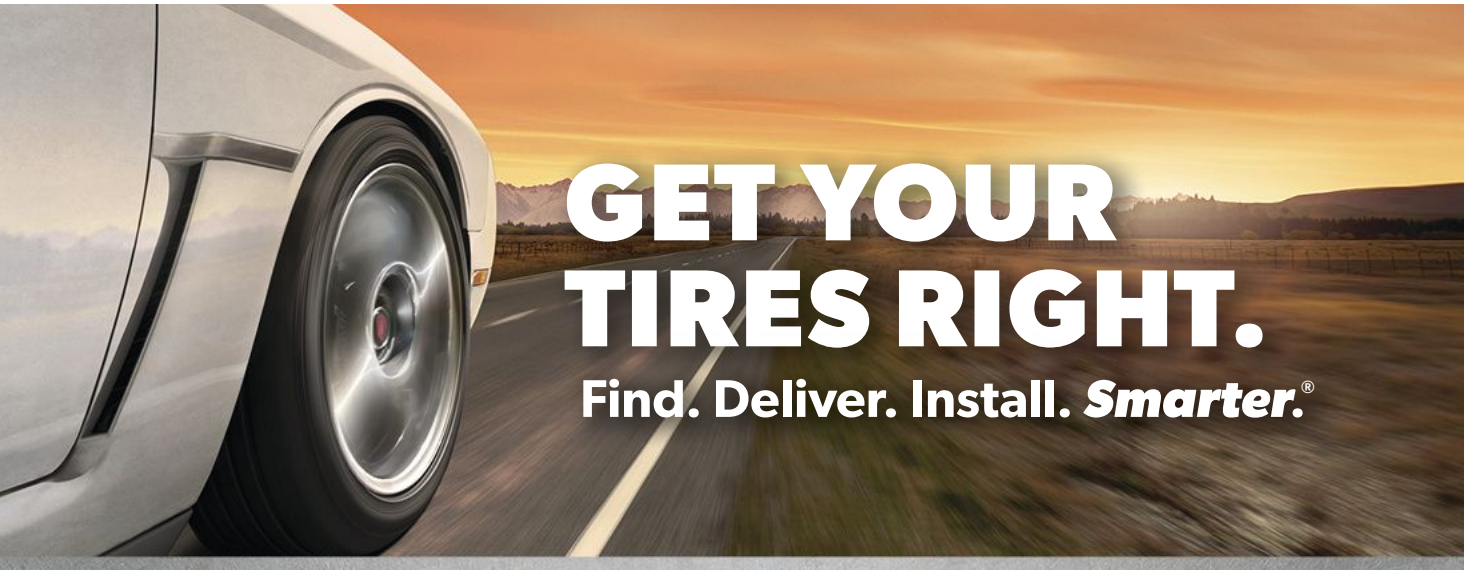

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Three-Row Hero

Volkswagen's **Atlas** has a lot riding on its burly shoulders.
_by K.C. Colwell

IT IS FITTING THAT THE ALL-NEW Volkswagen Atlas takes its name from the Greek god condemned to keep the sky from falling on mortals. VW needs this long-overdue three-row ute to lift the hugely publicized diesel-emissions scandal that continues to hang over the company [see page 050]. While sales for the people's brand are up through spring, they're still down compared with pre-scandal 2015, and the recent sales gains are largely due to the arrival of the Golf Alltrack, a boomlet that eventually could fizzle. Hence the need for the Atlas to prop up the enterprise.

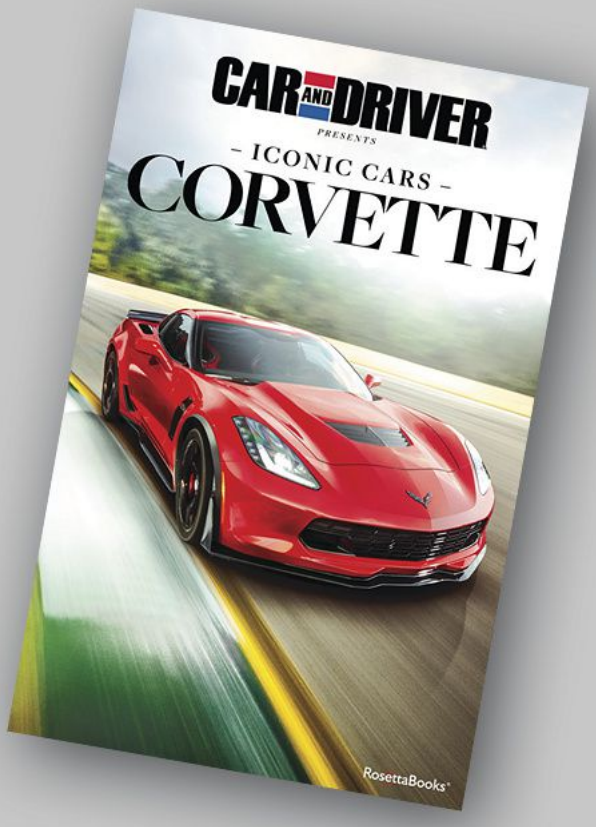
Riding on the same flexible architecture that underpins the Golf, the Tennessee-built Atlas is a medium-large three-row SUV that fills a major gap in VW's portfolio. Not since the Routan, a rebadged Dodge Grand Caravan that VW last sold in 2013, has there been a Volkswagen with more than five seatbelts. Buyers have been forced to look elsewhere for their family-hauling needs.

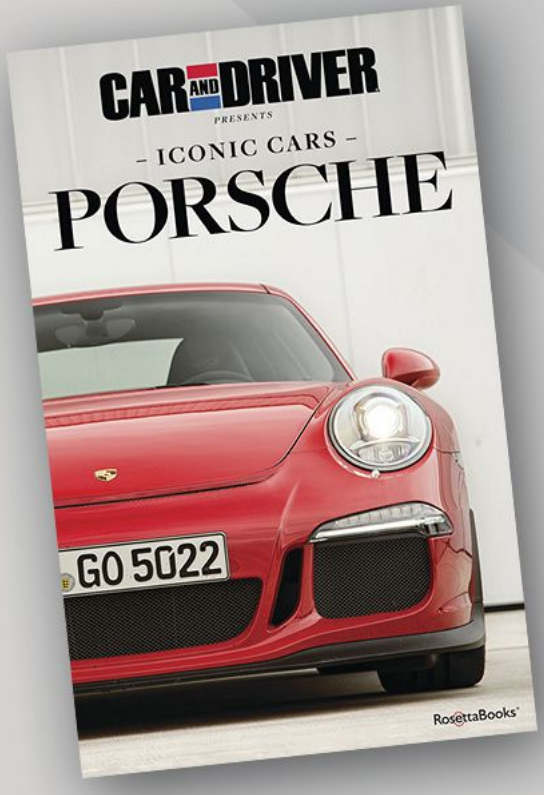
[+] Legitimate three-row comfort, cushy ride, thrones suitable for a long haul, tows 5000 pounds. [–] Could use more power, no rear entertainment for fidgety offspring.

The Atlas's outer dimensions skew toward the burly end of the segment. Overall length is within an inch of the Ford Explorer and the Nissan Pathfinder, but the VW has a longer wheelbase and makes excellent use of its footprint. Seven passengers, or six if buyers opt for the late-availability second-row captain's chairs, have 153 cubic feet of space to share. That matches the Honda Pilot's interior volume and eclipses that of the Mazda CX-9 by 18 cubes, although it's just shy of the Explorer's 155. With butts in all the seats, the Atlas has 21 cubic feet of cargo space while most competitors are in the teens.

Moving all that mass—up to an estimated 4550 pounds—is a task shouldered by one of two engines: VW's ubiquitous EA888 turbocharged 2.0-liter inline-four and a naturally aspirated 3.6-liter V-6. In this application, the turbo four makes 235 horsepower and 258 pound-feet of torque and feeds that output only to the front wheels. The narrow-angle V-6 [see tech highlight] is good for 276 horsepower and is available with either front- or all-wheel drive. Both engines get bolted to an eight-speed automatic transmission. We didn't have the opportunity to drive the four-cylinder, but it shouldn't be too terribly lazy around town. Its peak torque is just 8 pound-feet shy of the V-6's, and it arrives 1150 rpm lower, at 1600 rpm. We expect the V-6 Atlas to hit 60 mph in about

Two stunning retrospectives celebrating the past and present of these iconic cars.





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7.6 seconds, which is a little quicker than the pricier and smaller Touareg but well behind the Pilot.

Fortunately, the Atlas doesn't feel as big as it is. It drives small—although not quite as small as a CX-9. Solid-mounted front and rear subframes faithfully translate the driver's inputs into directional changes, but the steering is aloof and all but mute. The all-wheel-drive Atlas comes with a dial selector for its driving modes: snow, off-road, custom off-road, and on-road, the last offering four sub-modes consisting of eco, normal, sport, and individual. When switching among them, the most noticeable difference is the heavier steering in sport mode. Still, we didn't find the sport steering too heavy on our drive through Texas Hill Country's winding two-lanes, and there is no wandering on-center. The brake feel, something often overlooked in this class, is strong, too, with immediate pedal response and an intuitive correlation between effort and stopping force.

The ride flirts with buttery on the standard 18-inch wheels. The top trim level rolls on 20s, which don't diminish the ride quality but do contribute to a noticeable increase in tire noise. The front seats are built for long-haul comfort, with ample thigh, lumbar, and shoulder support. Both sections of the 60/40 split-folding second row slide fore and aft and will also fold forward to allow third-row access, even with child seats installed. Once in the wayback, adults will find plenty of legroom and an appropriate seat height; the rearmost row is lacking only in headroom, so taller passengers must slouch a bit.

The base S model starts at $31,425 and comes with LED headlights, 18-inch wheels, and Android Auto and Apple CarPlay integration. Stepping up to SE trim brings faux-leather seats, blind-spot monitoring, proximity entry and push-button start, additional USB ports, heated front seats, and an 8.0-inch touchscreen (up from the S's 6.5) with satellite radio. Add $1400 for the six-cylinder S.

2018 VOLKSWAGEN ATLAS

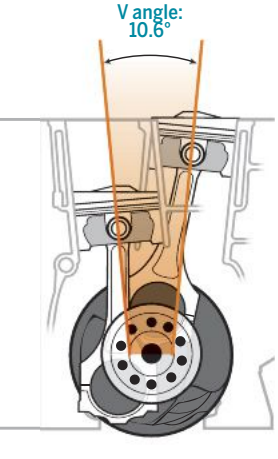
VEHICLE TYPE: front-engine, front- or all-wheel-drive, 6- or 7-passenger, 4-door hatchback
BASE PRICE: $31,425–$49,415
ENGINES: turbocharged and intercooled DOHC 16-valve 2.0-liter inline-4, 235 hp, 258 lb-ft; DOHC 24-valve 3.6-liter V-6, 276 hp, 266 lb-ft
TRANSMISSION: 8-speed automatic with manual shifting mode
DIMENSIONS
WHEELBASE: 117.3 in
LENGTH: 198.3 in
WIDTH: 78.3 in
HEIGHT: 70.0 in
PASSENGER VOLUME: 153 cu ft
CARGO VOLUME: 21 cu ft
CURB WEIGHT: 4300–4550 lb
PERFORMANCE (*C/D* EST)
ZERO TO 60 MPH: 7.6–8.0 sec
ZERO TO 100 MPH: 20.4–21.0 sec
1/4-MILE: 15.7–16.1 sec
TOP SPEED: 115 mph
FUEL ECONOMY
EPA COMBINED/CITY/HWY: 19–23/17–20/23–29 mpg (*C/D* est)

There is nothing flashy or frivolous about the Atlas. It's all sober design, sensible power, and ample space at a reasonable price. That might just work for VW.

There is also a V-6 S Launch model, which will be limited to a few thousand units; it gets the upsized infotainment interface and a panoramic sunroof otherwise reserved for SEL trims. The SEL starts at $40,085, or $41,815 for the V-6. Those looking to tow more than 2000 pounds will need the SEL V-6, which comes with a factory hitch and a 5000-pound towing capacity. VW also ups the radiator fan's motor from 600 to 850 watts and ditches the lower grille shutters to ensure air is always passing through the heat exchangers. All SELs include driver-assist features such as adaptive cruise control, lane-keeping assist, forward-collision warning, and park assist (all but park assist are available as options on the SE).

The SEL Premium (V-6, AWD only) brings real leather, 20-inch wheels, a 12-speaker Fender audio system, cooled front seats, and heated outboard second-row seats, along with a version of Audi's digital Virtual Cockpit, branded Virtual Display in VWs. The digital cluster functions much the same as its Audi counterpart does, but the map view isn't quite as striking (read: large) and the controls are on the right steering-wheel spoke, not the left.

The Atlas should be hitting dealerships anytime now. We think it's fully capable of shouldering the responsibilities of protecting families and their stuff as well as a big chunk of Volkswagen's future in America. Like its namesake, this VW is made to handle heavy lifting.



tech highlight

NARROW-MINDED

Volkswagen wasn't the first to build a narrow-angle, mono-head V engine (Italy's Lancia did it in the 1920s), but it has certainly stuck with it the longest, even employing the principles on current Bentley and Bugatti engines. Making its U.S. debut in the 1992 Passat, the so-called VR6 (a marketing-department portmanteau of V and *Reihe*, the German word for inline) displaced 2.8 liters, made 174 horsepower, and featured a 15.0-degree bank angle capped by a single 12-valve head. It used two camshafts, each controlling the intake and exhaust valves for one bank of cylinders. Shorter than an inline-six and only slightly wider than an inline-four, the cleverly designed transverse-six—it also did longitudinal duties in the Porsche Cayenne and others—supplied V-6 thrust in a smaller package. It got a four-valve head and grew to 3.2 liters (remember the 250-hp Golf R32?) by 2003. In 2006, displacement jumped to 3.6 liters, fuel delivery changed from port to direct injection, and the bank angle tightened to 10.6 degrees, allowing the camshafts to be reassigned with one dedicated to intake valves and the other acting on the exhaust valves. VW offers turbocharged four-bangers that now surpass it in terms of power and torque, and if a new six is to completely replace the veteran VR, as expected soon, we suspect it'll be a borrowed version of Audi's new 90-degree 3.0-liter.

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Poster Boy

It may not seem like a supercar, but the Mercedes-AMG **GT roadster** provides similar thrills at a savings. _by Jared Gall

THERE ARE A LOT OF GOOD POSTER-FODDER cars elsewhere in this issue. They're the very reason regular paper was deemed inadequately glossy and the cogs of innovation meshed to produce a sturdier, shinier poster stock and cardboard tubes to ship it in. Cars like those belong on posters on kids' walls.

But so do cars like this. In C trim, the Mercedes-AMG GT is, after all, a 550-hp roadster with its engine packaged entirely between the axles. You'll notice when you pop the hood and remove the AMG "engine" cover—yes, signed by the real, live person in Swabia who built the engine—that it isn't covering anything much more exciting than the coolant overflow bottle. The 4.0-liter V-8 is swaddled in a heat blanket to shield the hood from the thermal energy generated by the two turbochargers wedged into its valley and sits well behind the engine cover—indeed, well abaft the front axle. So even though the driver sits between the engine and the rear axle, the AMG carries its powerplant in the same midsection as any of the 500-plus-hp mid-engined roadsters on sale today, a list that starts at the Audi R8 and never so much as flirts with drudgery.

[+] Makes achieving and maintaining big speed easy. [–] Doesn't quite have the character or bandwidth of Porsche's 911 range.

You could certainly call the cars' performance stats fodder figures. Even in base GT trim, the 4.0-liter makes 469 horsepower. There will eventually be a 515-hp GT S roadster, but this time around we bookended the ragtop range by driving both the 469-hp GT and the stonking 550-hp GT C. In all guises, the V-8 is connected to a rear-mounted seven-speed automatic transaxle that can be manipulated by paddle shifters, should you choose to operate it yourself.

To better control its higher output, the C borrows quite a few pieces from the lunatic R model that sits at the top of the GT coupe hierarchy. Most of them are concentrated in the back of the car. The C shares its wider rear fenders, rear-steering system, tighter gear ratios, numerically higher final drive, and electronically controlled limited-slip differential with the R. It also borrows active shutters from the top dog's front fascia, plus the dynamic engine and transmission mounts, which soften to isolate the occupants from vibration or firm up to minimize powertrain movement.

But even in the base GT, it doesn't feel so much like there's a torque curve as just a godawful amount of grunt everywhere. A 503-hp GT S coupe in our hands hit 60 mph in three seconds flat; figure on the C roadster matching that time and the GT needing an extra couple tenths of a second. In many modern supercars, the process of engaging launch control is as simple as pressing "up, up, down, down, left, right, left, right, B, A, start." The base car still makes drivers jump all the hurdles, but if the C is in any driving mode more intense than comfort, simply follow the standard brake-torque protocol and the computer will read your intentions. The soundtrack is pure menace, but while the pops and spits on

overrun will raise the hairs on the back of your neck, the AMG twin-huffer V-8 doesn't have quite the tunnel-filling character of a Hellcat or the Shelby GT350's Voodoo V-8. Maybe that's why the engine only gets an alphanumeric code (M178) and not the sort of name that shows up as a tattoo.

Weight gain from the top's removal is minimal, just an extra 75 or so pounds on the C and around 120 for the GT. There's additional bracing in the cowl and behind the seats, and the rockers are sturdier in the topless cars. The net effect is a two-seater that feels like a convertible only when your nose starts to assume the texture of a pork cracklin'.

That aft-of-the-axle positioning of the engine enables stupefying handling. In the cons column, engine placement takes the blame for the snug interior, an impression greatly alleviated by the absence of the roof. Nonetheless, this is some gloriously inefficient packaging. Despite a vastly more compact appearance, the GT is only 3.7 inches shorter than its lengthy predecessor, the SLS. But thanks to its rear-steering system, the GT C is daringly agile. The system steers the rear wheels up to 1.5 degrees in phase with the front wheels above 62 mph. Below that, rear steering is out of phase with the front wheels, enabling quicker turning.

Above: This C is wider. Below: There is no engine under that AMG-branded engine cover. The engine sits rearward of the cover and the front axle.

A lighter lithium-ion battery and a magnesium radiator support shift the C's weight distribution rearward. The positioning of the occupants so far aft amplifies the sensation of rotation, though both cars have heaps of grip and always feel controlled, even when the yaw rate sounds a klaxon in your brain stem. The stoppers are firm, progressive, and tireless. And while the GT C offers additional levels of damper firmness, with a top setting that is quite stiff, no setting is ever harsh. It is both a thrilling sports car and a comfortable tourer.

What the GT and GT C roadsters aren't, though, is much differentiated. In the Porsche 911 lineup, a $30,000 spread will net two distinct experiences. Here there's one flavor, just intensified from the $125,395 base car to the $157,995 C. But it's a potent thing, a very effective way to go fast. And the top goes down. Don't kids still sleep in bedrooms with walls? These cars belong on posters on those walls.

2018 MERCEDES-AMG GT/GT C ROADSTER

VEHICLE TYPE: front-engine, rear-wheel-drive, 2-passenger, 2-door convertible
BASE PRICE: $125,395–$157,995
ENGINE TYPE: twin-turbocharged and intercooled DOHC 32-valve V-8, aluminum block and heads, direct fuel injection
DISPLACEMENT: 243 cu in, 3982 cc
POWER: 469 hp @ 6000 rpm or 550 hp @ 6750 rpm
TORQUE: 465 lb-ft @ 1700 rpm or 502 lb-ft @ 1900 rpm
TRANSMISSION: 7-speed dual-clutch automatic with manual shifting mode

DIMENSIONS
WHEELBASE: 103.5 in
LENGTH: 178.9–179.2 in
WIDTH: 76.3–79.0 in
HEIGHT: 49.6 in
TRUNK VOLUME: 10 cu ft
CURB WEIGHT: 3800–3900 lb

PERFORMANCE (*C/D* EST)
ZERO TO 60 MPH: 3.0–3.2 sec
ZERO TO 100 MPH: 6.9–7.1 sec
1/4-MILE: 11.2–11.5 sec
TOP SPEED: 188–196 mph

FUEL ECONOMY
EPA COMBINED/CITY/HWY: 18/15–16/22 mpg (*C/D* est)

TESTED

Evolutionary Success

Chevrolet's all-new, 2018 **Equinox** is smaller, better-handling, and just as practical as the crossover it replaces. _by Don Sherman

NOW THAT COMPACT CROSSOVERS have surpassed sedans as America's preferred form of get-around, we're wondering when they'll become fun to drive. Splicing car and truck genes is a boon to kid and pet hauling, but enthusiasts expect more from their steering wheels than a place to rest an elbow while dining. Honda's CR-V and Mazda's CX-5 are great all-arounders, but what this class needs to achieve lustworthiness is a half-price Porsche Macan.

Well, Chevy's third-generation Equinox arrived this spring to alter the status quo. Riding on a new Opel-engineered platform, it's hundreds of pounds lighter and 4.7 inches shorter but virtually as spacious as its predecessor. Trimming the wheelbase 5.2 inches and rehabbing the engine room with three choices of turbo inline-fours (including the Cruze's 1.6-liter diesel, later) moves the Equinox into the realm of the interesting.

After testing an Equinox Premier AWD with the base turbocharged 1.5-liter, we're convinced Chevy may be onto something. This top-trim edition has every imaginable safety aid except for adaptive cruise control. Its interior is replete with stitched and perforated leather, polished-metal trim plates, and more than enough USB outlets. As you'd expect with a sticker crowding $40,000, all-wheel drive engages at the touch of a button, the 8.0-inch touchscreen is compatible with Android Auto and Apple CarPlay, and the OnStar communication system includes a Wi-Fi hotspot.

But this Chevy's handling impressed us more than its creature comforts and room for four adults. While the electrically assisted power steering, as usual, lacks feel, there's minimal center slack, the rise in effort is linear and natural, and every wheel command yields a lively response. We measured 0.86 g of lateral grip provided by humble Hankook 235/50R-19 all-season radials, and with commendably little understeer. That cornering stick tops both that of the best handlers in this class and an all-season-shod Macan S by wide margins. Proving that it wasn't a fluke, the Equinox stopped from 70 mph in 161 feet, beating its key rivals by 5 to 23 feet and the aforementioned Macan by a remarkable 25 feet. On our local crypto-Nordschleife, the Equinox melded its steering, cornering, and braking assets into a cohesive whole, feeling more like a sports sedan than a sport-utility.

[+] Lighter, leaner, class-kicking cornering and braking. [–] Stuck in the slow lane until the 2.0-liter turbo arrives.

Unfortunately, the only powertrain available at the time of our test was the turbocharged 1.5-liter four making 170 horsepower (14 to 20 horsepower less than the CR-V) and 203 pound-feet of torque mated to a six-speed automatic transmission. What that combo lacks in speed and passing alacrity, it more than makes up for in racket. The run to 60 mph takes an agonizing 8.9 seconds, and there are 81 decibels of full-throttle din for accompaniment. Sadly, the Equinox is slower than the Toyota RAV4 and far in arrears of the quickest crossovers, which hit 60 in the mid-seven-second range.

But salvation is on the horizon: a turbocharged 2.0-liter packing 252 horsepower abetted by an all-new nine-speed automatic. Prophetically, that's the same peak power that Porsche bestows upon its $48,550 base-spec Macan. We'll be back.

2018 CHEVROLET EQUINOX PREMIER 1.5T AWD

VEHICLE TYPE: front-engine, front-/all-wheel-drive, 5-passenger, 4-door hatchback
PRICE AS TESTED: $39,045
BASE PRICE: $35,330
ENGINE TYPE: turbocharged and intercooled DOHC 16-valve inline-4, aluminum block and head, direct fuel injection
DISPLACEMENT: 91 cu in, 1490 cc
POWER: 170 hp @ 5600 rpm
TORQUE: 203 lb-ft @ 2000 rpm
TRANSMISSION: 6-speed automatic with manual shifting mode

DIMENSIONS

WHEELBASE: 107.3 in
LENGTH: 183.1 in
WIDTH: 72.6 in
HEIGHT: 65.4 in
PASSENGER VOLUME: 99 cu ft
CARGO VOLUME: 30 cu ft
CURB WEIGHT: 3646 lb

C/D TEST RESULTS

ZERO TO 60 MPH: 8.9 sec
ZERO TO 100 MPH: 26.8 sec
ZERO TO 110 MPH: 36.6 sec
ROLLING START, 5–60 MPH: 9.6 sec
1/4-MILE: 16.9 sec @ 83 mph
TOP SPEED: 124 mph (drag limited)
BRAKING, 70–0 MPH: 161 ft
ROADHOLDING, 300-FT-DIA SKIDPAD: 0.86 g*

FUEL ECONOMY

EPA COMBINED/CITY/HWY: 26/24/30 mpg
***C/D* OBSERVED:** 21 mpg

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Drivelines

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TESTED

The Big Show

Lexus's husky new starlet, the 2018 **LC500** coupe, trades on glamour. _by Mike Sutton

LEXUS'S ONGOING PLOT to develop soul-stirring vehicles appears to be coming together when you first see the stunning LC500 coupe on the road. But while the car is IMAX-grade automotive theater, the producers have yet to cast the right engine with a proportional amount of forward thrust. One is coming.

The gaping spindle grille that gives this car the face of an electric razor doesn't hinder the 500's curbside magnetism. The LC is also supremely accommodating, with a sumptuous interior, an excellent driving position, and a nose that clears parking stops. But the steel chassis underpinning the mostly aluminum and composite body panels is onerously heavy, albeit ultra-rigid. At 4378 pounds, our test car weighed more than a Honda Pilot.

[+] Sultry design, hell's-bells exhaust, eminently refined.
[–] Needs a serious diet, big bucks for modest thrust.

The $10,000 Performance package on our example somewhat countered the excessive weight by replacing the standard glass roof with a carbon-fiber weave. It also adds huge 21-inch forged wheels with run-flat Michelin Pilot Super Sport tires (245/40s in front and 275/35s out back), a limited-slip differential, a variable-ratio steering rack, rear-wheel steering, body-hugging sport seats, and lots of leather and Alcantara.

While the rear steering makes it feel somewhat aloof at the limit, this four-seater can play either a lazy grand tourer or a hunkered-down sports coupe depending which of the six driving modes (eco, comfort, normal, custom, sport, and sport-plus) you've selected. A general sense of understeer reminds you not to push too hard, yet the LC always feels crisp and poised thanks in part to its adjustable dampers. Even in the firmest setup, the LC soaks up Michigan's pockmarked pavement while keeping the body level in corners. And the electrically assisted helm is superquick (as quick as 9.8:1 with the variable-ratio steering) and precise, transmitting a pleasing amount of road texture from the front contact patches.

The drive modes also adjust the volume of the 471-hp 5.0-liter V-8's gripping soundtrack—up to 88 decibels at full whack—as well as how much snap accompanies the 10-speed automatic's smartly orchestrated shifts, be they on their own or via the magnesium paddles on the steering wheel. Sport mode was our preferred setting for its balance of refinement, noise, and heightened responsiveness.

Despite the LC's visual and auditory drama, however, its lateral grip (0.93 g) and 156-foot stop from 70 mph are unexceptional at this price point, and a 13.0-second quarter-mile pass at 112 mph is significantly off the pace of other high-end luxury coupes, not to mention the lesser Lexus RC F. We cruised at a solid 29 mpg on our 200-mile highway loop yet averaged only 17 mpg in our day-to-day use.

The LC500's near-six-figure admission fee ($92,975; the hybrid 500h is $4510 more) suits its exotic looks, with most of our test car's $12,120 in options worth the up-charge. But ultimately the LC trips on the red carpet when interviewed. Were they our dollars, we would hold out for the high-powered sequel, the twin-turbo 600-hp LC F that we expect Lexus to premiere later this year.

2018 LEXUS LC500

VEHICLE TYPE: front-engine, rear-wheel-drive, 4-passenger, 2-door coupe
PRICE AS TESTED: $105,095
BASE PRICE: $92,975
ENGINE TYPE: Atkinson-capable DOHC 32-valve V-8, aluminum block and heads, direct fuel injection
DISPLACEMENT: 303 cu in, 4969 cc
POWER: 471 hp @ 7100 rpm
TORQUE: 398 lb-ft @ 4800 rpm
TRANSMISSION: 10-speed automatic with manual shifting mode

DIMENSIONS

WHEELBASE: 113.0 in
LENGTH: 187.4 in
WIDTH: 75.6 in
HEIGHT: 53.0 in
PASSENGER VOLUME: 81 cu ft
TRUNK VOLUME: 5 cu ft
CURB WEIGHT: 4378 lb

C/D TEST RESULTS

ZERO TO 60 MPH: 4.6 sec
ZERO TO 100 MPH: 10.4 sec
ZERO TO 150 MPH: 25.2 sec
ROLLING START, 5–60 MPH: 4.8 sec
1/4-MILE: 13.0 sec @ 112 mph
TOP SPEED: 168 mph (gov limited, mfr's claim)
BRAKING, 70–0 MPH: 156 ft
ROADHOLDING, 300-FT-DIA SKIDPAD: 0.93 g

FUEL ECONOMY

EPA COMBINED/CITY/HWY: 19/16/26 mpg
***C/D* OBSERVED:** 17 mpg

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THREE-PAGE COMPARO

Clowns to the Left of Me, Jokers to the Right

It's Chevrolet **Colorado** vs. Honda **Ridgeline** in this battle of lightweight middlemen. _by Daniel Pund

THE ONLY VEHICLE-SEGMENT DESCRIPTOR in the automotive market that might be more amorphous than "crossover" is "mid-size pickup." The mere mention of it has our own Don Sherman furiously scribbling numbers on scraps of paper, wild eyed and sweating. "There's no such thing," he growls. And, we must admit, he's kind of right. Not about the temperature in the office. He's dead wrong about that. But "mid-size pickup" assumes that there is something bigger and something smaller, between which this middle-size thing fits. There is no smaller class of pickup, though. And every Chevrolet Colorado, Sherman's handwritten notes attest, exceeds the length of the shortest Silverado. What does it all mean, other than that we need to arrange a remote office for Sherman?

We don't know. What we do know is that two vehicles from opposite edges of the automotive world can meet in the maybe-you-don't-actually-need-a-pickup middle ground of "mid-size pickup truck." And so it is with the Colorado and the Ridgeline. The Chevy hails from the world of Silverados, country songs, diesel, and brodozers. The Honda shares a platform with a minivan. Like an actual pickup, the Chevy is available in two bed lengths, two cab sizes, and with a choice of three engines (one of which burns that fuel you get at truck stops). The Honda is front-wheel drive in its base form and can turn the sides of its bed into an enormous speaker.

So that brings us to this no-win situation starring a Colorado LT 4WD crew cab short box and a Ridgeline RTL-E AWD. If we

Drivelines

photography by MARC URBANO

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	2017 CHEVROLET COLORADO LT CREW CAB 4WD	2017 HONDA RIDGELINE RTL-E AWD
PRICE AS TESTED	**$36,605**	**$42,410**
BASE PRICE	**$34,670**	$42,410
POWERTRAIN		
ENGINE	DOHC 24-valve V-6 223 cu in (3649 cc)	SOHC 24-valve V-6 212 cu in (3471 cc)
POWER HP @ RPM	**308** @ 6800	280 @ 6000
TORQUE LB-FT @ RPM	**275** @ 4000	262 @ 4700
DRIVELINE		
TRANSMISSION	8-speed automatic	6-speed automatic
DRIVEN WHEELS	rear/all	all
DIMENSIONS		
LENGTH	212.7 in	210.0 in
WIDTH	74.3 in	78.6 in
HEIGHT	70.6 in	70.8 in
WHEELBASE	128.3 in	125.2 in
FRONT TRACK	62.4 in	66.1 in
REAR TRACK	62.4 in	66.0 in
GROUND CLEARANCE	**8.2 in**	7.9 in
INTERIOR VOLUME	**F: 62 cu ft** **R:** 45 cu ft	**F:** 58 cu ft **R: 51 cu ft**
BED DIMENSIONS		
LENGTH	61.7 in	**64.0 in**
WIDTH	57.8 in	**60.0 in**
DEPTH	**20.9 in**	18.0 in
MINIMUM WIDTH	44.4 in	**50.0 in**
CAPABILITY		
MAX PAYLOAD	**1548 lb**	1499 lb
MAX TOWING	**7000 lb**	5000 lb

C/D TEST RESULTS

ACCELERATION		
0–30 MPH	**2.2 sec**	2.3 sec
0–60 MPH	**6.1 sec**	6.4 sec
0–100 MPH	**17.1 sec**	17.6 sec
1/4-MILE @ MPH	**14.7 sec @ 95**	15.0 sec @ 93
ROLLING START, 5–60 MPH	**6.3 sec**	6.6 sec
TOP GEAR, 30–50 MPH	**3.4 sec**	3.9 sec
TOP GEAR, 50–70 MPH	**4.5 sec**	4.9 sec
TOP SPEED	100 mph (gov ltd)	**112 mph** (gov ltd)
CHASSIS		
BRAKING, 70–0 MPH	**182 ft**	**182 ft**
ROADHOLDING, 300-FT-DIA SKIDPAD	0.74 g	**0.77 g**
WEIGHT		
CURB	**4481 lb**	4504 lb
%FRONT/%REAR	57.1/42.9	57.5/42.5
FUEL		
EPA COMBINED/ CITY/HWY	19/17/24 mpg	**21/18/25 mpg**

award the trophy to a Honda pickup, we will be revealed as the pantywaists that we are. And if we choose the Chevy, it will imply that we are country music fans. Either way, Sherman's pissed.

So, we awarded Honda the win. Yes, it is the more expensive of the two, but if it had gills, this Ridgeline would be considered loaded to them. And before you accuse us of being wusses, you should know that we actually towed and hauled with both of these vehicles. We pulled a burly muscle car known to badasses worldwide as an MX-5 on a steel trailer, a combined weight of 4544 pounds, 65 percent of the Colorado's max tow rating and 91 percent of the Ridgeline's (7000 and 5000 pounds, respectively). The Colorado's 3.6-liter V-6 might not be as smooth as the Ridgeline's 3.5-liter, but it makes 28 more horsepower and 13 pound-

The Colorado is a nicely executed conventional pickup truck, with all the good and the bad that implies. The Ridgeline is a brother from another planet.

Above: A picture of a truck passing a, wait, what's that? Top right: The Honda's rear seats are roomy and comfy. Above right: Earth Dreams of what?

feet more torque. Sans trailer, it gets to 60 mph a few tenths of a second quicker than the Honda. And the Chevy holds the same acceleration advantage while towing. The Chevy merely feels slow pulling the trailer; the Honda feels burdened.

Further, we carried a total of 47 two-cubic-foot bags of premium brown hardwood mulch (each weighing about 43 pounds) because, well, because we suspect reviews editor Josh Jacquot needed about 47 bags of premium brown hardwood mulch for his yard. The Ridgeline pulled out a narrow victory here, accommodating 24 bags. Its bed walls are shorter than the Colorado's, but the Ridgeline's in-bed trunk swallows four bags, giving it a one-bag win. The half-ton payload eliminated the Chevy's truckish bounciness, thus annulling the Honda's dramatically better ride quality. Unladen, the Honda gets easy laurels.

Truth is, both vehicles do just fine for reasonable towing and hauling needs. Sure, we'd be more comfortable regularly pulling a trailer with the Chevy. But for our purposes, owning a Ridgeline and an aluminum trailer might be just as good an option.

You can trace most of the Ridgeline's advantages to its minivan/family-SUV roots. As configured (four-door cab and short bed), the Colorado is longer and rides on a longer wheelbase than the Ridgeline. But because the unibody Ridgeline is more space efficient (and also 4.3 inches wider), it feels much roomier. You feel as if you're in a full-size SUV more than a mid-size pickup. That's true both in front and back. Even those who scoff at the Ridgeline's minivan-with-a-bed styling must acknowledge the superiority of its roomy and comfortable rear quarters. Would they notice that the interior of the Ridgeline is made of vastly nicer things? Maybe. It certainly is. They would notice the Ridgeline's more comfortable front seats. The Honda's only real interior foible is the blasted infotainment system that's infuriatingly button-free, requiring use of the silly, unresponsive capacitive-touch controls.

Some on staff appreciate the Colorado's honest truckishness, and it's true that it beats the hell out of the Nissan Frontier and even the Toyota Tacoma (which lost to the Colorado in a November 2015 comparo). But those of us in the office who do not harbor rodeo fantasies prefer a capable vehicle that drives like a big car instead of like a smallish truck. The Colorado is a fine mid-size pickup truck, and Chevy is being rewarded handsomely with sales for its efforts. But if conventional truck capability and style is your desire, why not step up to the not-much-more-expensive Silverado? The Ridgeline is something different. It's a mid-size pickup, without the truck part. And we reckon—if we judge the needs of buyers in this class properly—the Ridgeline is capable enough. Its greater comfort, handling, and fuel economy don't diminish its trucklike abilities; they are additive. But you're not going to be fooling anyone. This mid-sizer doesn't pass the truck sniff test. Anyway, there's no such thing as a mid-size pickup truck.

Below left: The Honda towing our burly muscle car. Below right: Hide your finest mulch in the locking trunk. Bottom left: Jacquot with his "test gear."

2. Chevrolet Colorado
[+] Truck demeanor, towing capacity, multiple body configurations and engine options.
[–] Truck demeanor, tight interior.
[=] An excellent truck if a truck is what you want your mid-size pickup to be.

1. Honda Ridgeline
[+] Ride comfort and handling distinctly un-trucklike.
[–] Remember when people used to convert full-size vans into pickups? Yeah, it looks kind of like that.
[=] Capable enough that you needn't feel guilty about the comfort.

INSET IMAGES BY AUSTIN IRWIN

Drivelines

Advertisment

How To: Fix Your Fatigue and Get More Energy

According to patients at the Center for Restorative Medicine, a discovery has completely transformed their lives.

Founder and Director **Dr. Steven Gundry** is a world-renowned heart surgeon, a best-selling author, and the personal physician to many celebrities. But his breakthrough could be the most important accomplishment of his career.

Dr. Gundry has unveiled a simple — yet highly effective — solution to issues that plague millions of Americans over 40: low energy, low metabolism and constant fatigue.

“When you’re feeling low energy, that’s your body screaming **HELP!**” Dr. Gundry’s radical solution was inspired by a breakthrough with a “hopeless” patient who had been massively overweight, chronically fatigued and suffering from severely clogged arteries.

The secret to his breakthrough? **“There are key ‘micronutrients’ missing from your diet,”** Dr. Gundry said, “If you can replenish them in very high dosages, the results can be astonishing.”

This unorthodox philosophy is what led Dr. Gundry to create an at-home method for fatigue — which has since become remarkably successful with his patients.

“They’re reporting natural, long-lasting energy without a ‘crash’ and they’re

feeling slim, fit and active,” he revealed.

Dr. Gundry’s team released a **comprehensive video presentation** , so that the public can be educated as to exactly how it works.

Watch the presentation here at **www.GetEnergy49.com**

Within just a few hours, this video had gotten thousands of hits, and is now considered to have gone viral. One viewer commented: “If this works, it’s exactly what I’ve been praying for my whole life. I’ve never seen anything like this solution before…the truth about my diet was shocking and eye-opening.”

It makes a lot of sense, and it sounds great in theory, but we’ll have to wait and see what the results are. Knowing Dr. Gundry, however, there is a great deal of potential.

See his presentation here at **www.GetEnergy49.com**

Halo Bender

Acura's **MDX Sport Hybrid** finds the NSX supercar's tech stash. _by Bengt Halvorson

HYBRID TECHNOLOGY PROMISES to advance our vehicles' efficiency, performance, and gratification, even if it saddles them with more mass. But that hybrid halo is often illusory. In many luxury hybrids, off-the-rack gasoline-electric technology yields an underwhelming, slow-witted driving experience, even if the cars are occasionally quicker than their less expensive nonhybrid counterparts.

The Acura MDX Sport Hybrid SH-AWD is a rare exception, and one that lives up to its potential—at least in our first drive, without the instruments attached. Credit goes to the hybrid-electric hardware from the NSX supercar paired with a less potent six-cylinder engine. The technology that makes the NSX both highly capable and approachably benign improves the driving experience and efficiency of this high-riding six- or seven-passenger family wagon.

The nonhybrid MDX SH-AWD is itself stellar. It's among the best-handling three-row crossovers, with precise, nicely weighted steering and well-controlled vertical body motions. The Sport Hybrid ramps up the tractive teamwork in corners, applying resistance (and recovering energy) at one rear wheel while delivering forward drive to the other, achieving a more nuanced and more effective form of torque vectoring than the nonhybrid version can deliver. The hybrid system also does away with a mechanical connection between the engine and the rear axle. Instead, a 3.0-liter V-6 up front is paired with two 36-hp motor/generators at the rear. A third electric motor, rated at 47 horsepower, is geared to the input shaft of the seven-speed dual-clutch automatic transmission and has three roles: delivering supplemental torque, smoothing shifts, and acting as a generator. The entire system makes 321 horsepower and 289 pound-feet of torque, or 31 horses and 22 pound-feet more than the nonhybrid models.

[+] Vivid powertrain response, great city mpg, no packaging compromises. [–] Infotainment remains an ergonomic disaster, token third row, forget about towing.

The seven-speed transmission and hybrid motors are all business, ripping through the gears with quickness and grace. You hear shifts more than feel them, and the rush of passing power starts even before the transmission has downshifted. Moving along with city traffic, it's clear that Acura's hybrid know-how extends beyond mountain-road esses. The hybrid system brings the V-6 seamlessly into the mix with a wet multiplate clutch, finessing the low-speed drivability issues that can plague such a setup. Accelerate gently and the MDX hybrid launches silently in electric-drive mode. The V-6 comes on shortly thereafter, although it often switches off when coasting at speeds up to 56 mph.

Most of the standard MDX's driving experience remains. There's a fair amount of body lean, but the adaptive dampers do filter out harshness. Push hard into tight corners and you might find yourself dialing in too much steering input, as the outside rear motor nudges the vehicle's rotation, preempting understeer. Four driving modes vary throttle response, steering effort, and damper behavior. Sport-plus mode keeps the engine running all the time.

Acura says the hybrid kit adds 227 pounds to the standard all-wheel-drive model, but the addition of the 1.3-kWh lithium-ion battery pack has minimal effect on packaging. The ground clearance is the same as that of the standard MDX, seating is comfortable in the first two rows and good enough for kids in the third, and cargo space is uncompromised.

Given the boost of 8 mpg in the city and 1 mpg on the highway versus the standard all-wheel-drive MDX, and the extra cost of just $1500, the only reason to avoid the hybrid might be that trailering isn't recommended due to transmission durability concerns.

2017 ACURA MDX SPORT HYBRID SH-AWD

VEHICLE TYPE: front-engine, front- and rear-motor, all-wheel-drive, 6- or 7-passenger, 4-door hatchback
BASE PRICE: $52,935
POWERTRAIN: SOHC 24-valve 3.0-liter V-6, 257 hp, 218 lb-ft; 1 front permanent-magnet synchronous AC electric motor, 47 hp, 109 lb-ft; 2 rear permanent-magnet synchronous AC electric motors, 36 hp (each), 54 lb-ft (each); combined system, 321 hp, 289 lb-ft
BATTERY: air-cooled lithium-ion, 1.3 kWh
TRANSMISSION: 7-speed dual-clutch automatic with manual shifting mode

DIMENSIONS

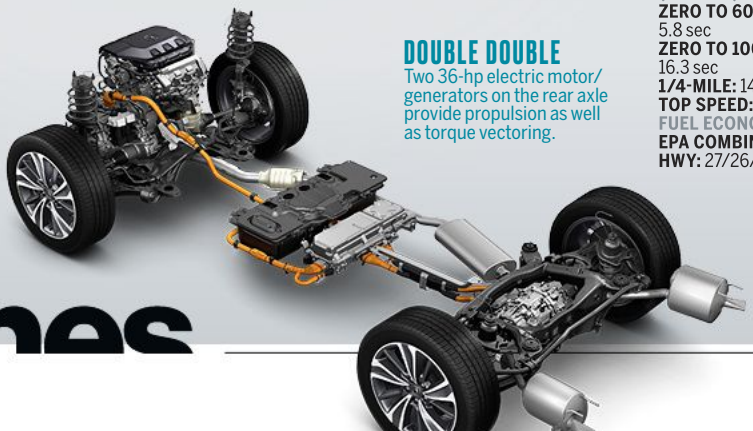
WHEELBASE: 111.0 in
LENGTH: 196.2 in
WIDTH: 77.7 in
HEIGHT: 67.4 in
PASSENGER VOLUME: 132 cu ft
CARGO VOLUME: 15 cu ft
CURB WEIGHT: 4500 lb

PERFORMANCE (*C/D* EST)

ZERO TO 60 MPH: 5.8 sec
ZERO TO 100 MPH: 16.3 sec
1/4-MILE: 14.5 sec
TOP SPEED: 110 mph

FUEL ECONOMY

EPA COMBINED/CITY/HWY: 27/26/27 mpg



DOUBLE DOUBLE
Two 36-hp electric motor/generators on the rear axle provide propulsion as well as torque vectoring.

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RAPID PUMP® 3 TON LOW PROFILE HEAVY DUTY STEEL FLOOR JACK

Customer Rating ★★★★★

- Weighs 73 lbs.

SAVE $190

$79.99 Compare $269.99 $94.99

ITEM 61253/62326/61282 shown

19008943

LIMIT 4 - Coupon valid through 10/6/17*

CENTRAL MACHINERY — SUPER COUPON

12 TON SHOP PRESS

Customer Rating ★★★★½

- Pair of arbor plates included
- Extreme duty steel construction

SAVE $79

$99.99 Compare $179 $119.99

ITEM 33497/60604 shown

19015737

LIMIT 3 - Coupon valid through 10/6/17*

PITTSBURGH AUTOMOTIVE — SUPER COUPON

SAVE 72%

NEW

LOW-PROFILE CREEPER

Customer Rating ★★★★½

- 300 lb. capacity

$19.99 $27.99 Compare $71.97

ITEM 63424
63372 shown

19001935

LIMIT 6 - Coupon valid through 10/6/17*

CENTRALPNEUMATIC — SUPER COUPON

3 GALLON, 100 PSI OIL-FREE AIR COMPRESSORS

SAVE 59%

Customer Rating ★★★½☆

A. HOT DOG
ITEM 69269/97080 shown

B. PANCAKE
ITEM 95275 shown
60637/61615

YOUR CHOICE $39.99 $54.99

Compare $98.62

19002905

LIMIT 3 - Coupon valid through 10/6/17*

HARDY™ — SUPER COUPON

MECHANIC'S GLOVES

SIZE	ITEM
MED	62434/62426
LG	62433/62428
X-LG	62432/62429

NEW Item 62429 shown

Customer Rating ★★★★★

YOUR CHOICE $3.99 $5.99

SAVE 60%

Compare $9.98

19018888

LIMIT 7 - Coupon valid through 10/6/17*

HaulMaster — SUPER COUPON

MOVER'S DOLLY

• 1000 lb. capacity

Customer Rating ★★★★★

ITEM 60497/61899
62399/63095/63096
63098/63097/93888 shown

$7.99 Compare $19.97 $10.99

SAVE 59%

19019787

LIMIT 8 - Coupon valid through 10/6/17*

PORTLAND — SUPER COUPON

1750 PSI PRESSURE WASHER

Customer Rating ★★★★½

- 1.3 GPM
- Adjustable spray nozzle
- 20 ft. high pressure hose

$79.99 NEW $99.99

ITEM 63255
63254 shown

19011065

LIMIT 5 - Coupon valid through 10/6/17*

drillmaster — SUPER COUPON

Includes one 18V NiCd battery and charger.

18 VOLT CORDLESS 3/8" DRILL/DRIVER AND FLASHLIGHT KIT

SAVE 74%

Customer Rating ★★★★½

$19.99 $24.99 Compare $79

ITEM 68287 shown
69652/62872/62869

19021194

LIMIT 6 - Coupon valid through 10/6/17*

CEN-TECH — SUPER COUPON

SAVE 57%

12 VOLT, 10/2/50 AMP BATTERY CHARGER/ ENGINE STARTER

Customer Rating ★★★½☆

$29.99 $49.99 Compare $69.99

ITEM 60581
60653 shown

19025837

LIMIT 4 - Coupon valid through 10/6/17*

CENTRALPNEUMATIC — SUPER COUPON

SAVE $138

3/8" x 50 FT. RETRACTABLE AIR HOSE REEL

Customer Rating ★★★★½

$59.99 $79.99 Compare $198.45

ITEM 93897 shown
69265/62344

19026443

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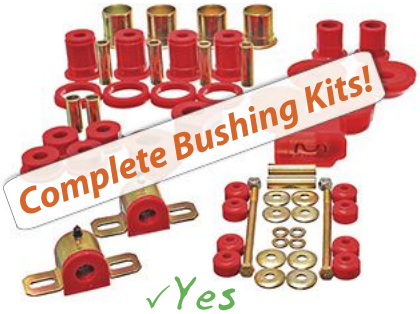

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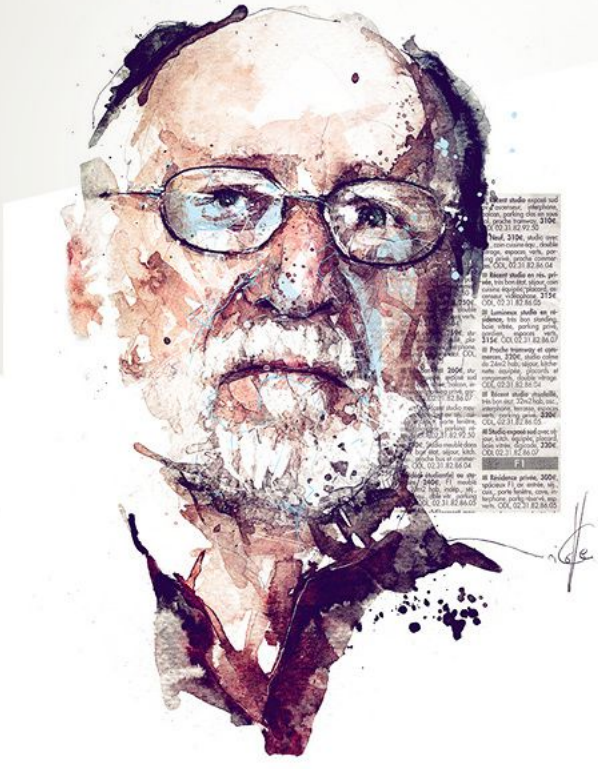
What I'd Do Differently
Bob Chandler, 75

In 1975, Bob Chandler put oversize tires on his Ford F-250 and created the first monster truck. Bigfoot #20 is electrically powered and #22 is under construction.

► *interview by* JOHN PEARLEY HUFFMAN



C/D: ***After 42 years, do you ever feel Bigfoot is a curse?***

BC: Sometimes when I'm working long hours. When we started doing shows with Bigfoot, my wife and I would sit down at the end of the year and say, "You know, we need to get to as many of these shows as we can because it's not going to last." It's still great.

■ ***And still busy?***

☐ Some years we do over a thousand shows and displays. Right now it's a little bit slow. Some years we're at 600 or 700. Actually our business increased each year when the economy went sour. Apparently people can't take big vacations, but they can sure spend money on a local monster-truck show.

■ ***Bigfoot's been in the movies.***

☐ We've been in seven movies. The first one, *Take This Job and Shove It*, really seemed to turn things over for us. We got really busy after that. And we started building more trucks. The people we deal with, the transportation coordinators and directors and the like, have been nice. Some of the actors have been pains in the butt. You're not supposed to look at them, not supposed to talk to them, not supposed to walk by them. They're little prima donnas. Most are nice, but there are some weirdos.

■ ***What kind of condition is Bigfoot 1 in?***

☐ The cab has been replaced because early on I ran mud runs and it rusted out. Everything has been changed. The frame was changed after *Take This Job and Shove It.* They bent it in that movie. The axles have been changed a dozen times over its life. But it still runs and still has that 640-cubic-inch Hemi in it.

■ ***So it's George Washington's ax. It's on its third head and sixth handle, but it's George Washington's ax.***

☐ True. But I've asked people at events about redoing it, taking it all apart and making it look new. And they say: "Don't. Leave it the way it is." It's an antique, and that's probably what I'm going to do.

■ ***You could build a Bigfoot 1 replica.***

☐ We actually built one for somebody. I think he's in New York somewhere. It's pretty much just like Bigfoot 1, but it's still not Bigfoot 1. And he can't use the name on it, of course.

■ ***Bigfoot drove over a Porsche 928 in* Cannonball Run II. *Is there a car you've felt guilty crushing?***

☐ After we got done driving over that car, a stunt guy got into it and drove it into town. Some of the antique cars, if we can help it, we won't [crush]; it gets people upset.

■ ***Bigfoot and Monster Jam don't get along?***

☐ Well, I ran for them before they were Monster Jam. That's maybe five companies back. When they came in, they wanted to buy Bigfoot. And I said I wasn't interested in selling. They're pushing Grave Digger, and the trucks they push are the trucks they own. And they can get all the novelty rights and everything else off them. I understand what they're doing. It's a business decision. People seem to like their shows.

■ ***Your daughter and son-in-law run the company now. Is there a limit to the growth? Will Bigfoot eventually hit a wall?***

☐ All three of my kids work for the company. I watch these shows on TV in the big domes, and it scares me what they do with the trucks. They've hurt some drivers before. But I don't see it stopping. People like it, and it's very reasonable to go to a show and see monster trucks.

■ ***Do your kids have the same passion for trucks that you had?***

☐ They don't have the passion. But what they have that's better is ideas. And that's what you need to carry this business on.

■ ***So in 1998, Bigfoot 9 went to Brazil and never came back.***

☐ That country is different than most. According to their law, the truck belongs to whoever unloads it. We were advised we could hire either an attorney or a "facilitator" who would hand out bribes and such. We hired an attorney. That was a mistake. It's still down there. We've seen it on the internet, and it was running down there with sponsors. We called up the sponsors and they pulled out. Which was nice.

■ ***Do you consider yourself retired?***

☐ Semiretired. Any day I'm at home, I'm at work. Because I like it. We have six or seven trucks out every weekend.

■ ***Are you ever tempted to drive the trucks again?***

☐ Somebody wanted Bigfoot 1, the original monster truck, at a show and said, "I want you to drive over cars." And I said I don't want to. I'm 75 years old. I don't want to tear things up now. I want to enjoy the rest of my life.

■ ***Is there anything you would have done differently?***

☐ There are always things you wish you had done differently. I'm trying to figure out how I would change with Monster Jam. I should be in all their shows with my trucks. I watch them on TV, and I know my trucks will do them. I would be nicer and tie in with them. Other than that, minor things.

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illustration by FLORIAN NICOLLE

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